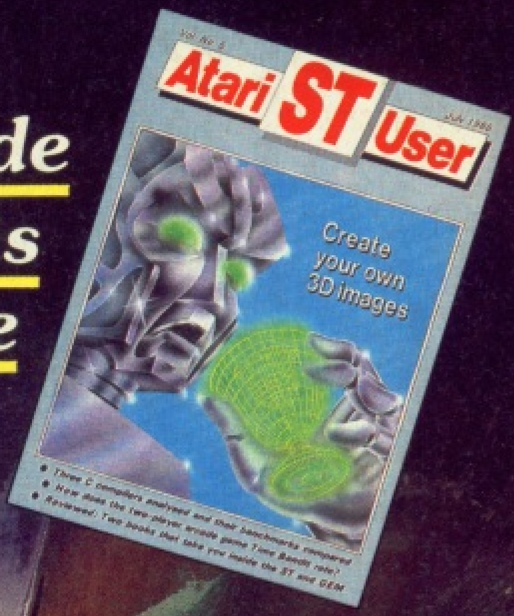
A Database Publication

ATARI USER

Vol. 2 No. 3 July 1986 £1

Inside this issue



Can YOU escape the

SPACE MAZE

How to control devices from the joystick port

ATARI INVADES POLAND

Fight Revision B bugs with our Basic Fixer



£25 CASH for your 5-liners



Vol. 2 No. 3 July 1986

Managing Editor: **Derek Meakin**
Technical Editor: **André Willey**
Production Editor: **Peter Glover**
Art Editor: **Heather Sheldrick**
Reviews Editor **Christopher Payne**
News Editor: **Mike Cowley**
Advertisement Manager: **John Riding**
Advertising Sales: **John Snowden**
Editor in Chief: **Peter Brameld**

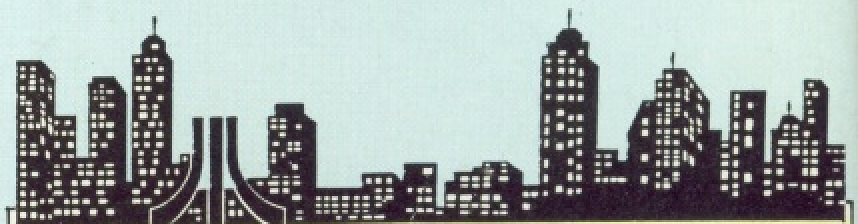
Editorial: **061-456 8835**
Administration: **061-456 8383**
Advertising: **061-456 8500**
Subscriptions: **061-480 0173**
Telecom Gold: **72:MAG001**
Telex: **265871 MONREF G**
Quoting Ref. 72:MAG001
Prestel Mailbox: **614568383**

Published by:
Database Publications Ltd,
Europa House, 68 Chester Road,
Hazel Grove, Stockport SK7 5NY.

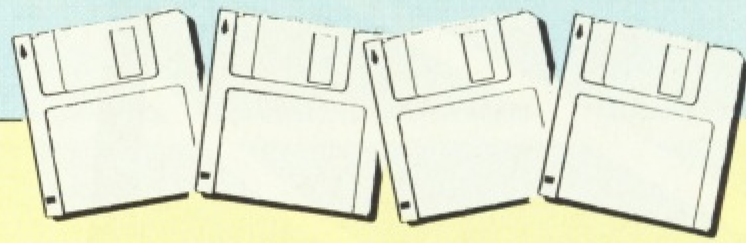
Subscription rates for
12 issues, post free:
£12 – UK
£15 – Europe
£30 – Overseas (Airmail)

"Atari User" welcomes program listings and articles for publication. Material should be typed or computer-printed, and preferably double-spaced. Program listings should be accompanied by cassette tape or disc. Please enclose stamped, self-addressed envelope, otherwise the return of material cannot be guaranteed. Contributions accepted for publication by Database Publications Ltd will be on an all-rights basis.

News trade distribution:
Europress Sales and Distribution Limited, Unit 1, Burgess Road, Ivyhouse Lane, Hastings, East Sussex TN35 4NR. Tel: 0424 430422.



Contents





July 1986
Vol. No. 5
Atari ST User
Create your own 3D images
Three C compilers analysed and their benchmarks compared
How does the two-player arcade game Time Bandit rate?
Reviewed: Two books that take you inside the ST and GEM

Call Now........ FOR THE BEST PRICES ON THE FULL RANGE OF ATARI HARDWARE & SOFTWARE

umart

gadeal

30 XE PACK

ARI JOYSTICK

n Front
ming-1
Raider

4)

5.00

£3 P&P

Atari Hardware

		SAV AVE.
Atari 130XE-128K Computer FREE Miner 2049'er & Pole Position	£119.00 £3p+p	£10
Atari 1050-Disk Drive FREE Steve Davis Snooker, Blue Ribbon'5' Pack+HFM+Payoff+Dos 2·5+Demo's	£127.00 £3p+p	£26
Atari 1029-Dot Matrix Printer FREE Atariwriter+ & Graphics Dump	£129.00 £3p+p	£40
Atari 1027-Letter Quality Printer	£125.00 £3p+p	£25
NEW-Atari XC12 Program Recorder	£32.00 £2p+p	£3

We Stock a Wide Range of ATARI Peripherals

Call NOW for Incredibly LOW Prices

same day . . . . Disks 1st class post, Hardware – parcel post

please send cheques/postal orders to:

COMPUMART (Dept AU)
Gracedieu Road, Loughborough
Leics. LE11 0QF

Compumart
0509~262259
HOTLINE


Compumart
SAVE £40
ST Megadeal
ATARI 520STM
512K Ram-TOS/GEM on Rom-Mouse-Software-Plugs into your T.V. via the onboard RF Modulator
ONLY £399.00 £3p&p
With 20 FREE S/S DISKS
Atari 3½" ~ ½ Megabyte Disk Drive £145.00 £3p&p
Atari 3½" ~ 1 Megabyte Disk Drive £195.00 £3p&p
Top Quality 3½" Microdisks
BOXED IN 10's ~ LABELS etc....
LIFETIME WARRANTY
SINGLE SIDED 135 T.P.I. £19.00 +£1 p&p
DOUBLE SIDED 135 T.P.I. £24.00 +£1 p&p
3½" Microdisks
Call Now.... For BEST Prices on the FULL ST Range
Now... Software Too!!
Goods despatched same day . . . . Disks 1st class post, Hardware – parcel post
Please send cheques/postal orders to:
COMPUMART (Dept AU)
71 Gracedieu Road, Loughborough
24 Hour Credit Card Order Line
VISA
Access
Compumart
0509~262259
HOTLINE

New insurance scheme for your Atari

A UNIQUE personal computer insurance package which for the first time offers breakdown cover is now available to subscribers to *Atari User*.

Underwritten by the giant Cornhill Insurance group, the scheme also provides protection against theft, accidental loss and damage at savings of up to 50 per cent, making it the cheapest in the country.

While the theft clause only applies to micros that are stolen from lockable buildings, the accidental loss and damage cover is for anywhere in the UK – even while the computer is in transit.

Negotiated by Database Publications on behalf of its readers with leading brokers Mason and Mason of Wilmslow, the breakdown section covers call out, labour and materials charges for all micros not under warranty.

As with all current policies, different rates apply to urban and metropolitan areas, the latter being judged high risk areas for theft.

Typical examples of annual premiums reveal that cover for a system – micro and peripherals – valued at £200 would be £10, at £500 some £16, and at £1,000 approximately £35.

Businessmen who subscribe to *Atari User* will also have the opportunity to join a company scheme which provides additional cover.

"The market has been crying out for a policy of this kind – particularly involving breakdown – for years", says Derek Meakin, head of Database. "We are just pleased that we are able to offer it first to subscribers to *Atari User*".

For further details see Page 56

ST is outselling the Macintosh

A TOP secret report has revealed that Atari ST computers are currently outselling the popular Apple Macintosh machines in the UK.

Commissioned by Atari UK and only just completed, the document provides conclusive evidence that the ST is showing its rival a clean pair of heels. So much so that in certain parts of the country the ratio is as high as three to one in favour of the ST.

"It is true that we have now learned that the Atari is outselling the Macintosh", says Max Bambridge, Atari UK's boss, "and our sales are almost equally divided between the 520ST and the 1040ST".

While refusing to disclose actual figures – "you'll get those at the end of the ST's first full year in operation" – Atari's man in Britain is known to be well pleased with the results to date. "This latest news only indicates that we are well on target", he told *Atari User*.

Meanwhile Atari's claim to have overtaken the Macintosh received support from a somewhat unusual quarter – the former Macintosh marketing manager.

Nigel Parry left Apple in August, 1984, and set up Laser Software primarily to cater for the Macintosh market. Since the arrival of the ST however, his company has been producing products for both machines.

Now he reports that the ST is accounting for a lot more sales than the Apple computer. "It works out to be in the region of 2.5 to one", he says. "Atari's policy of providing a simple user interface at a fraction of the cost of competitive systems has meant a large and increasing installed base".

The product most in demand by ST users from Laser is its Laserbase ST which retails for £99.95 – and Nigel Parry reports that much of the interest is coming from schools. As a result, the software house has announced educational discounts for its programs.

Not that this boom in sales from the ST market means that Nigel Parry intends to turn his back on the Macintosh.

"I'm not knocking the Macintosh in any way" he says, "and anyone who drops in at my office will find I use both a Macintosh and an ST.

"But it seems as far as users are concerned Atari has delivered the right machine at the right price and is successfully exploiting the last niche left in the market".

Kim's 800XL wins the MicroLink competition



Norman Buddon, BR Travel Centre manager and his assistant welcome Mrs Jane Burgess, the winner's wife in London

COMPUTER shop salesman Kim Burgess used his Atari 800XL to win a free weekend in London.

Kim, 33, correctly answered 15 questions about MicroLink, the UK's fastest growing electronic mail service.

The competition was organised in conjunction with British Rail who offer seat and sleeper reservations using MicroLink's new telebooking service. Hundreds of entrants successfully answered the 15 questions but Kim's was the first name drawn from a hat.

Much to the delight of his wife, Jane, he won a weekend in London for two, free rail travel, luxury accommodation at a London hotel, free tickets to a Database Exhibitions computer show and finally a wonderful trip to Stratford upon Avon on a steam-hauled excursion train.

Kim, of Bromley, Kent, said: "I used my Atari 800XL to log on to MicroLink and then searched through the text to find the answers.

"I find MicroLink very useful. In fact we have just booked two seats for a London theatre using the system.

"It was an incredible weekend. My wife and I thoroughly enjoyed the outing. Everything was perfect".

John knows how to keep his customers happy



John Mullen . . . software and coffee

SCOTSMAN John Mullen has turned his computer shop into a real At-Home-with-Atari club. People who pop in with queries or wanting details about Atari machines and software end up sipping coffee served by one of his nine-strong staff.

And those who are really hooked on computers are even invited to join him on coach outings to see what's new in the computer world at exhibitions.

John, managing director of Warrington (Cheshire) All Computers, cannot stop thinking up novel ideas to keep his customers happy.

"When I had an Atari 800 XL a few years ago I just could not get any help with it. I realised there was a vast gap in the market, so I set up my own shop. Now I have two branches and the Atari models have lots of enthusiasts", he said.

"To survive you have to be aware of the computer market, read magazines like the *Atari User* and visit trade and public shows to see how the public react.

"I found it expensive for a family to go down to London for an exhibition so I arranged to hire a coach to visit every show and have had no difficulty filling every seat with each customer just paying a share of the hire price – which works out about £12 from here".

As well as a full repair service, John runs a customer request service. "Instead of them hunting about for new software – which generally is announced as being out but isn't – I do it for them and ring them when it is available", he said.

With the help of his manager, Robert Blinkhorn, he has now introduced an Atari Computer Club, held in the evenings in an adapted stockroom.

For £3 a year families are encouraged to learn new skills and discuss problems or ideas at the club sessions.

John and his wife, Kathryn, who does the accounts, believe keeping the customers happy and well served is a vital part of any business.

MERCENARY FOR THE ST

AN Atari ST version of the successful Mercenary – Escape from Targ game is due for release soon from Novagen.

Out now is The Second City, a second data set for the Mercenary game, which uses the load game facility to provide a new scenario.

Mercenary, The Second City and a Targ Survival Kit, which includes maps and books, costs £24.95.

New releases

NEW business graphics software for the Atari 8 bit range has been released by Ariolasoft.

B/Graph is a presentation tool for sales, marketing, forecasting, accounting and management.

It can graph up to three factors with 100 data points each and convert instantly between graph types without re-entering data.

Statistical Analysis functions include standard deviation, variance, Chi-square regression analysis and function plotting.

The twin disc costs £29.95.

★ ★ ★

AN Atari ST database that takes advantage of the Gem environment and works with a mouse has been released by Robtek.

Atari DB-Calc is designed for customised reports, mailing labels, memberships, sales, stocklists, office and personal records and financial statistics.

The database has an unlimited number of fields per record, superfast sort and even faster search on a field, says Robtek.

It selects on any combination of fields, allows all printer control functions, and has a built-in text editor that integrates with mailmerge.

A calculator is built-in. Price £49.95.

★ ★ ★

A DATABASE management system from Haba Systems, which is claimed to be intuitive, has been released for the Atari 520ST and 1040ST.

Haba is planning to introduce a new title for the ST every month. Next release will be Haba Spelling Checker designed to work with the company's word processor, Habawriter.

Habaview costs £74.95.

★ ★ ★

A LEADING budget games company has brought out a new label for its software aimed at the Atari 8 bit range.

Mastertronic hopes this will increase its market share – currently 11 per cent – by as much as four per cent.

Announcing the new label – Entertainment USA – with two new games for the Atari 8 bit machines, Bump Set Spike-Double Volley Ball and Vegas Poker, a spokesman said: "Certainly over the next year we expect our market share to be in excess of 15 per cent and the Atari machines could be a significant factor in that increase".

The games each cost £1.99.

★ ★ ★

LATEST Adventure released by Level 9 for the Atari 8 bit range, is Price of Magik.

Object is to take over the red moon crystal ball and learn spells to control the enemy.

The game has two programs on a single cassette and costs £9.95.

New ribbons for old

A NEW-ribbon-for-old scheme for Atari printers has been set up by Aladdink. Used printer ribbon cassettes sent to the new Scottish company will be returned within a few days re-inked and ready again for use.

Aladdink is offering the service at one third of its normal retail price, with a minimum of £1. The company suggests having two ribbons – one for use while the other is away being re-inked.

The service is available to anyone by posting a used cassette, together with a remittance equal to one third of the price originally paid for it, with a minimum of £1, stating the make and model of the printer.

ST's inside story

KUMA Software has published its first book for the Atari ST series – The Atari ST Explored.

Topics covered include GEM, TOS, the BIOS, ST Basic and Logo. An in-depth coverage of 68000 assembly code is also included with details on system variables and operating system calls to the BIOS.

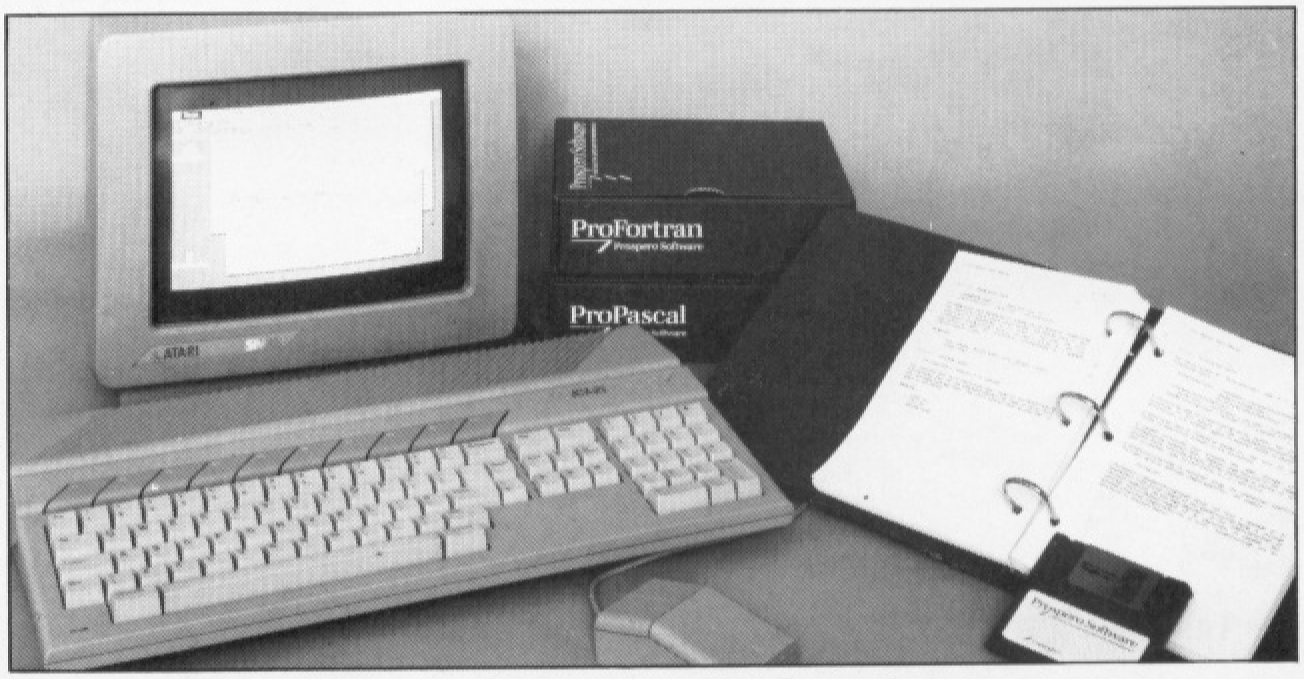
There are also chapters on how to configure the keyboard and using the RS232 interface to connect the ST to printers, electronic mail services and other computers.

Sales manager Jon Day said: "It is written in very readable style, illustrated with diagrams and examples. For anyone wanting to learn about the capabilities of this advanced micro system, it is essential reading".

Price: £8.95.

RACE GAME

A FAST-action car racing game, Major Motion, has been released for the Atari ST by Microdeal. It will cost £19.95.



Fortran, Pascal compilers

TWO new compilers for the Atari ST have been brought out by Prospero Software.

ProFortran-77 can be used to compile programs transferred from minis or mainframes and uses the existing library software.

It has 7 and 16 digit precision floating point, 4 byte integers and full GEM, AES and VDI bindings to take advantage of the GEM user interface.

ProPascal is a complete ANSI 770X3.97 standard Pascal compiler with extensions, including strings, 7 and 16 digit precision floating point, separate compilation and 4-byte integers.

Turbo source code will port to the Atari with minor modifications.

Each costs £129 and comes with a 230 page manual. Neither is copy protected.

Ataris are beach pavilion attraction

A SEASIDE cafe overlooking a magnificent view of Anglesey in North Wales is the unusual setting for Britain's newest and probably smallest computer club.

Retired amusement machine engineer, Harry Trew, 62 years young, set up the club, which uses two 800XLs, in the beach pavilion and cafe at Llanfairfechan, near Conwy, a month ago.

"About five years ago I became interested in a computer, using it to do my cafe accounts. Now I have retired I thought it a good idea to encourage youngsters and grown ups to use the cafe as a base for swopping computer knowledge", said Harry.

"The nearest other club is at Colwyn Bay, about 15 miles away. We only have 18 members at present and about half turn up for the Saturday evening meeting".

Luckily two members are local computer experts who bring along their 800XLs to help the youngsters. Some are studying for A levels and use the machines for their homework.

After hearing about the little Welsh club *Atari User* contacted Community Computers UK, a division of Inter-Action Trust, established to help young people make better use of computers.

Molly Lowell, managing director of Inter-Action's computer projects, said: "After you told me about the little club we were only too happy to respond. Shortly we will have two handbooks out which will answer all their problems".

LISP FOR ST

THE Lisp/ST system, a fast and compact version of standard Lisp, is now available for the Atari ST from Robinson Systems.

It provides a powerful environment for developing and running symbolic programs and includes multiwindow support using GEM. Price: £99.95.

Added to the menu..

MENU+ has been added to the Metacomco range of programming languages for the Atari ST.

It will now be offered along with the latest upgraded versions of Lattice C, Pascal and Assembler.

As a GEM-based command shell, Menu+ is a high specification programming environment using pull down menus and the mouse to control programs, avoiding complicated command lines.

Either single programs or batches can be run and users can add their own tools, arguments and options to the menus. It provides a history function of previous commands, allowing re-execution of commands at a double clock and works with any program written for the ST.

Price: £19.95.

Metacomco has brought in an upgrade service. Users of its ST programming languages can upgrade to the latest releases at a cost of £10 for each language.

Super simulation



Program: Silent Service
Price: £9.95 (cassette) £14.95 (disc)
Supplier: Microprose, Heneage Street, Birmingham B7 4LY. Tel: 021-359 3020

MICROPROSE, acknowledged experts in simulations, have another on release. Silent Service is a realistic American submarine simulation set in the South Pacific during World War II.

It offers three types of scenario – torpedo/gun practice, convoy actions and war patrols.

Torpedo and gunnery practice gives you a swift and gentle way of familiarising yourself with the sub's controls.

Control of the sub's functions is handled by a mixture of joystick and keyboard inputs.

Although the list of more than 30 commands looks daunting at first sight, they have been well thought out and it is surprising how quickly you get to grips with them.

The simulation revolves around multiple battle station screens, all of which are graphically impressive.

The primary battle station is the conning tower. This basically acts like a selection menu, allowing you to gain access to other screens.

The periscope's black cross-hairs turn white when you locate a vessel, the torpedo data computer is then automatically activated and target tracking displayed.

Data available includes target identification, range, speed and, for the benefit of really bright submariners, angle on bow and gyro angle.

While on the surface the bridge gives you a wide-angled view of nearby islands, the coastline and ships.

It also indicates current visibility, the bearing of your view and, like most of the other screens, the sub's heading, speed, depth and throttle position.

The maps and charts screen is something extra special. It combines geographic, sonar and rader information on a map and shows the location of your submarine (black blob), torpedoes and any enemy ships (white blobs).

And how brilliantly Microprose have implemented this feature. On call up you are presented with a superb map of the entire Western Pacific.

Even more impressive is what happens when you hit the zoom key – the map is replaced with a patrol map which shows the 500 by 300 mile area surrounding your position.

Zoom again and you'll get a navigation map (60 by 40 miles).

Hit zoom once more and there's the most detailed attack map, showing an area of just 8 by 5 miles with any ships shown as small tails indicating the direction in which they're moving.

You can reverse the whole process by hitting the unzoom key. It's all quite stunning.

On top of all this there are a range of four skill levels and a variety of reality levels which allow you to customise any situation (limited visibility, zig-zagging convoys, some dud torpedoes, expert destroyers.

All this adds up to one heck of a depth and width to the game play.

Silent Service has been brilliantly designed, immaculately implemented. Superb.

Bob Chappell

Sound	8
Graphics	9
Playability	9
Value	10
Overall	10

Wheelie thrills



Program: Kik Start
Price: £1.99
Supplier: Mastertronic, 8-10 Paul Street, London EC2A 4JH. Tel: 01-337 6880

THE object of the game is to achieve the fastest time riding a motorcycle over three obstacle courses selected from a set of eight.

Obstacles include stationary vehicles, water, rough ground, walls and tyres, and each must be taken at an appropriate speed or you will crash, dropping to the bottom of the track and remaining at minimum speed to the end of the current obstacle.

Speed can be assessed from the changing sound of your motor, and is controlled by right/left movement of the joysticks.

Wheelies are generated by pushing forward and you can jump by pressing the fire button. Pressing the Spacebar pauses the game. There is also a high score table.

My young users panel, aged 7 and 9, took to it immediately and delighted in driving the motorcycles wildly, enjoying the animation of the bikes, the riders spinning off in crashes, the wheelies and the jumps.

They were enthralled and did not notice the slightly jerky horizontal scrolling.

Once the initial excitement died down the competitive element became apparent, and this is the game's real strength.

Two players can race on identical tracks, one in the top half of the screen and the other below.

Overall the game is fun, compelling and challenging and with eight different tracks it will take time to attain real mastery.

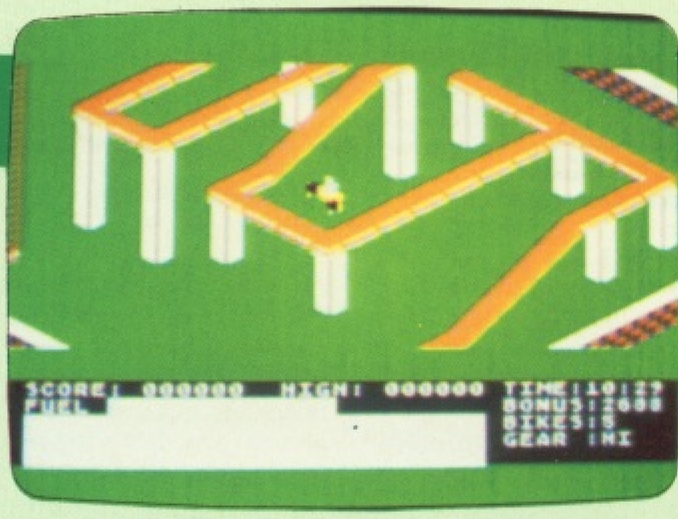
Kik Start will provide entertainment for all computer game fans except expert arcade addicts who might find it too easy.

What a pity it is not available on disc.

Ian Finlayson

Sound	7
Graphics	8
Playability	9
Value	8
Overall	8

Bit of a drag race



Program: Action Biker
Price: £1.99
Supplier: Mastertronic, 8-10 Paul Street, London EC2A 4JH. Tel: 01-337 6880

LOOKING at the graphics on the cassette inlay I was quite impressed by this game. However after loading, the game's graphics were a bad let down.

It appears that this is yet another example of a software house showing screen shots from other versions on the cassette case.

Action Biker is based on the lovable character in the KP Skips advert, Clumsy Colin.

The screen is divided into two sections, the bottom part containing information regarding the last object picked up, score, fuel and so on and the top of the screen scrolls around Clumsy Colin and his vehicle.

Although the graphics could not be said to be bad, they are not that good either. This seems to be the general level of the game – mediocrity.

The sound is one thing that is not mediocre. It is terrible. It includes a painfully grating tune which can thankfully be turned off.

You navigate Colin and his bike around the city which contains a fairground, a building site and a lake among other things, in search of items which will improve the performance of Clumsy Colin's mean machine such as a gear box, leather gloves and a crash helmet.

After you have collected one item, another appears somewhere else. The position of these items becomes progressively more difficult to reach until you have to traverse the roller coaster or some scaffolding to reach them.

Once you have collected all the objects you take part in a drag race. I have not progressed any further than this, not because of the game's difficulty, but because it has not impelled me to do so.

On the positive side the game is very cheap and younger players would probably enjoy it because of its comparatively low difficulty level.

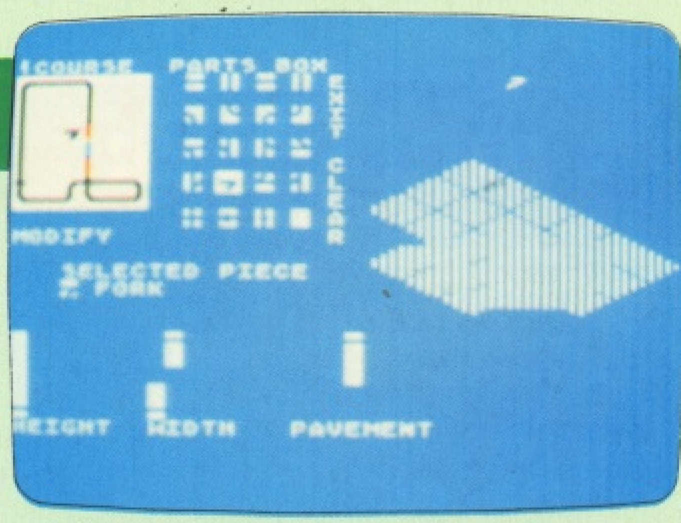
However hardened gamers will probably find that there is no real challenge and will quickly become disinterested.

I cannot really recommend this game and my advice would be to give Clumsy Colin as wide a berth as possible.

Mark Woolward

Sound	3
Graphics	5
Playability	4
Value	6
Overall	4

Crash on regardless



Program: Racing Destruction Set
Price: £14.95 (disc only)
Supplier: Ariolasoft, 68 Long Acre, Covent Garden, London WC2E 9JH. Tel: 01-836 3411

RACING Destruction Set, to put it at its simplest, is Scalextric on a computer.

You drive a red vehicle along a slotted track in competition with a yellow vehicle controlled by the computer or another player.

The reduced screen is split horizontally with your view of the action in the top window, your opponent's (computer or human) in the lower.

The basic idea is to belt round the track (straights, bends, ramps, crossovers) an appropriate number of times and finish ahead of your opponent.

The graphics are nothing extraordinary – simple but adequate about sums them up. Sound effects include engine noises, crashes and skids.

You can change nearly all the parameters in the game.

The gravity can range from one sixth of Earth's so when you go over a ramp, you really fly, or $2\frac{1}{2}$ times that of the Earth. There are no less than 14 settings to experiment with.

The number of laps can be anything from one to nine and there are four types of background scenery – racetrack, motocross, lunar and abstract.

And there's more. You can choose your own and opponent's vehicle from any of 10 different types – grand prix racer, baja buggy, dirt bike, lunar rover, stock car and jeep to name a few.

You can customise any basic vehicle since each has its own set of engine sizes and tyre types. For destruction play you can also add up to five layers of armour, seven layers of crusher power (useful when ramming the opponent), nine gallons of oil (for dropping slicks) and, would you believe, four landmines (destruction's the right word!).

There is a choice of an incredible 50 differently laid-out tracks to race on. The names are evocative – killer, snake, jumps and tiger, for example, are as tough as they sound. Many are modelled on famous racing tracks and roadrace courses.

You can also design your own tracks or modify existing ones using a large selection of pieces.

The facility is simple to use and any tracks designed can be saved to disc.

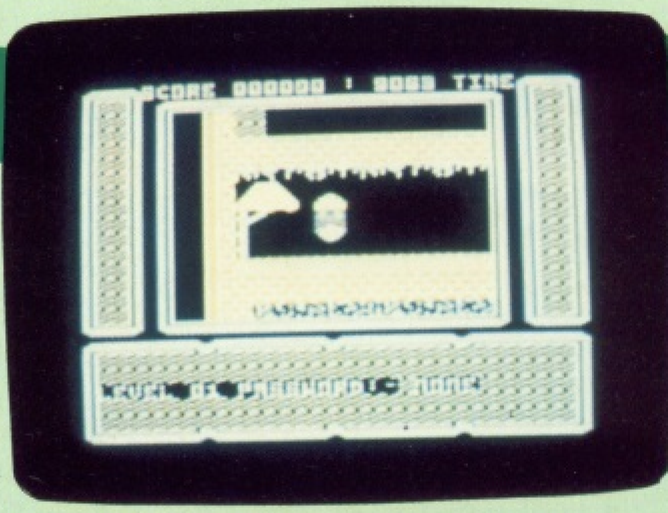
Given all these features, the game is really something special. The graphics may be a trifle lacklustre but that's a small point when set beside the wealth of options.

There are thrills and spills galore and for sheer versatility the program is unbeatable. Pass me the chequered flag – Racing Destruction Set is a winner.

Bob Chappell

Sound	6
Graphics	6
Playability	9
Value	9
Overall	9

Hit for a song



Program: One Man and His Droid
Price: £1.99
Supplier: Mastertronic, 8-10 Paul Street, London EC2A 4JH. Tel: 01-337 6880

THE aim here is to navigate a droid through underground caverns to round up a flock of sheep.

On loading the program I was greeted with a bright, lively tune better than most found in full-priced games.

To begin the game proper you must first guide your way through a herd of cute little creatures called Ramboids which seem to be a mixture of cast-offs from PacMan and smiling yellow blobs with red cheeks.

At first this section adds to the game, but after a while it becomes a time-consuming annoyance.

The point of the game is to coax all the Ramboids into the teleport receptors in the 20 minutes allowed.

This may sound easy, but you also have to transport the Ramboids in a certain order so not only do you have to coerce one particular Ramboid to the teleporter but you also have to prevent any of the others from reaching it first.

The screen is split into sectors containing data on the Ramboids, the droid's status mode and a monitor of what is happening around your well-animated and detailed droid.

The droid has three operational modes which can be toggled via the fire button.

Each Ramboid has a set pattern of movement (for which Mastertronic heartlessly call them stupid) and once memorised it makes your task of guiding them much easier.

Once you have rounded up all the Ramboids, with at least four in the correct order, you progress to the next level. Your task in level 2 is made harder by a plague of mobile brick walls getting in the way. Level three has a more complicated layout to master.

Mastertronic has included several very nice touches – a password for each level, a facility to obtain the position of each Ramboid in the caverns, a well presented high score table and optional keyboard control.

The game's difficulty level is just right to optimise playability and it has very nice colour graphics, a delightful continuous tune and very professional sound effects.

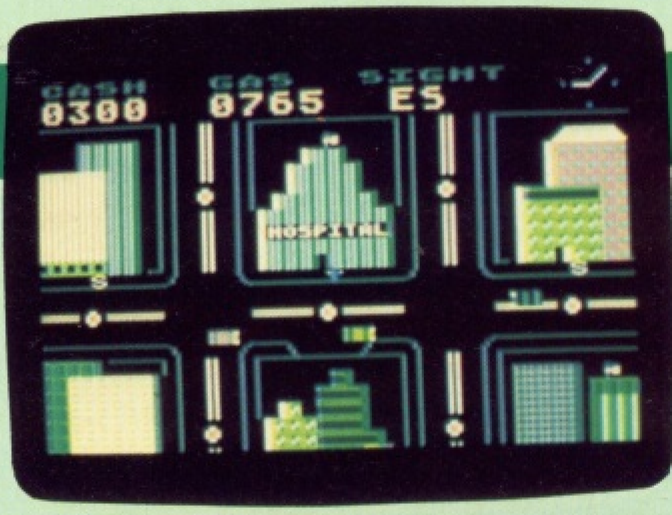
After an indifferent start I have become involved and am now an addict, not being able to leave the game alone.

At £1.99 this is a great value game which will become a massive hit.

Mark Woolward

Sound	9
Graphics	8
Playability	8
Value	10
Overall	9

Out of the Ark



Program: New York City
Price: £2.99
Supplier: Americana Software, Parkway Industrial Estate, Heneage Street, Birmingham B7 4LY. Tel: 021-359 3020

THE idea in New York City is that as a tourist you must visit 12 locations within a certain time. Included on your itinerary are the Empire State Building, Central Park Zoo, the UN Building, World Trade Centre and Grant's Tomb.

More prosaically, you must also pay a call to such places as the subway, city hall, bank and post office.

New York is shown on screen in the form of a large, scrolling plan of the city. The graphics are very blocky and what you get are large chunks representing different buildings, interlaced with roads.

You begin by travelling around the city in a car. If you run out of gas or collide with another vehicle in the fairly busy traffic your car is towed away to the garage lot where storage charges begin mounting up.

Getting the car back means paying bills for storage, gas and repairs.

On foot you are safe from the traffic while on the pavements and can soon reach some of your destinations.

Provided they are open you can enter, whereupon the display will change to reveal the buildings interior.

This is where the game is at its most disappointing. The interiors are graphically boring and all you get to do once inside is play a very simple and crude arcade game.

The most common one is to make your way to the top of a grid of platforms and ladders, grab the prize and exit (ho hum).

In the zoo the game consists of erecting fences around escaped animals (yawn). At the bank, you dodge guards and bullets (zzzzz) while at the post office you must grab a letter and try to mail it (snore).

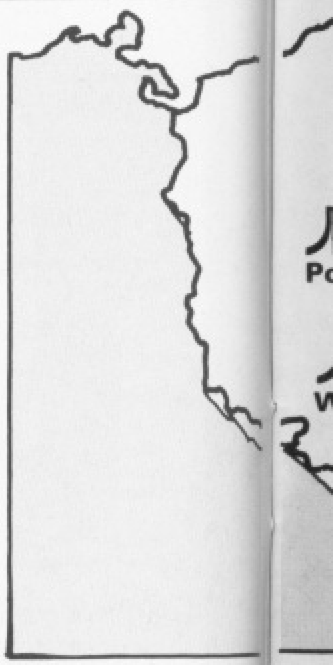
And really that's about all there is to it. You just keep wandering around streets and playing silly, uninspiring arcade games for which you either earn or lose money. And keep doing this until your time is up.

Three or four years ago one could have said that this game had some merit. Now, though, it looks as if it came out of the Ark. Zippy graphics and a wider variety of challenges might have helped redeem it.

In a word, boring. My advice is to either save your money or look at some of the other offerings Americana Software have at this price.

Bob Chappell

Sound	4
Graphics	5
Playability	6
Value	6
Overall	5



How Atari breached Poland's Electronic Curt

THE computer revolution that swept through the West at the end of the '70s and the beginning of the '80s arrived in Poland, with a delay of about three or four years, in the shape of the Sinclair Spectrum.

At that time it was the unquestionable ruler of the Polish computer market – and it still occupies quite a respectable position. For over three years any other computers that were brought to Poland by people coming back from their visits to the West were scarce, and their unfortunate owners tried to get rid of them as soon as it was possible, mainly due to the lack of software.

Even such well known brands as Commodore, Amstrad, Apple, not to mention our Atari, couldn't break through the curtain. One must be aware of the fact that a computer can only be useful if there are a certain amount of programs that can be used for both professional and entertainment purposes.

What good is a computer for which one could only get an odd few games and nothing else? Can it really serve one's purposes, or will it fairly soon degenerate into one more forgotten toy?

Poland does not supply its computer owners with any kind of software from the West. You can't just go into a shop and choose out of dozens of available programs. Even now the only way to obtain some really good and useful ones is to buy them from the computer clubs here, or to exchange the ones that you have for someome else's.

At the beginning of the '80s the situation was very much worse. Due to the fact that the Spectrum was the most widely used computer here, people planning to buy a micro in the West decided on the Spectrum. They knew that they would have no software problems whatsoever. And they were right.

It took them about three years to realise the serious limitations and inconveniences imposed by the Spectrum, and this was the beginning of the new period of computerisation in Poland.

The change was swift. First Commodore, then Apple, the BBC Micro and other brands began to appear in Poland. There was never an *official* import of personal computers into Poland. People brought them, however, from various countries and within months the Spectrum lost its monopolistic position. There were even a few earlier Atari products such as the 400 and 600XL.

Yet there was no one then who could predict which of all these brands would become a true leader in the field in Poland. Most people wanted something new that would shift the balance radically.

Then came rumours about the new release by Atari of the 800XL. Compared with the Commodore 64 it had better graphics and was to be more reliable. It had more memory than Sinclair's Spectrum and other products. One needn't buy an interface for printers, joysticks and so on.

By TADEUSZ MENERT

Compared with the earlier Atari products it was more powerful and versatile, and it had fewer bugs in its version of Basic. Despite that, it was compatible with former Atari products, which meant that anybody deciding on buying it didn't have to wait months for interesting software.

But there was still a danger of buying something that wouldn't become popular here in Poland. Some took the risk, and I was one of them.

I was on holiday in England in 1985, and despite tight finances was positive about buying a computer. The chance occurred in August when I visited a second hand shop at Notting Hill Gate and spotted a nice 800XL with a data recorder and three software items for only £73, which was almost half price then.

Without hesitation I took it back home to Cracow. It took me about a month to locate other Atari users. There were about 50 at the time and for the games I had bought, I received in exchange five others and became the proud owner of eight games altogether.

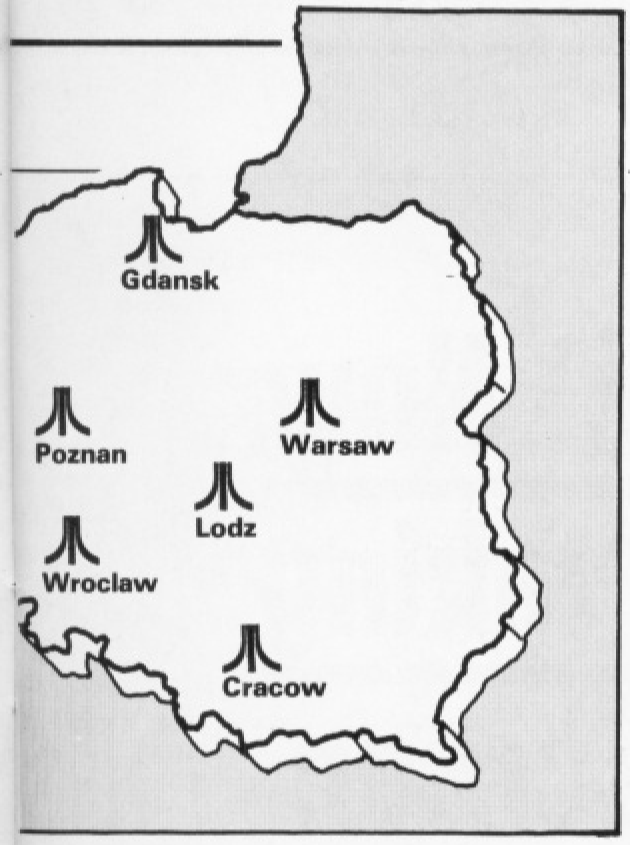
I played them, enjoyed them, and learned more and more about my Atari. Everything went its own standard way. And then came a real shock.

For the first time in history, Poland bought a batch of Western personal computers – about 500 Ataris plus a certain amount of data recorders, disc drives and long awaited software.

Why Atari, and not Commodore or Amstrad? Well Jack Tramiel is, after all, of Polish origin, born in Warsaw (as far as I know). His Polish name was Jacek Trzmiel.

One would think that the software and hardware problem in Poland was over now, and to some extent it was.

Things need, however, a little explanation. All this equipment was bought in by Pevex, a firm that sells such goods in Poland for Western currencies. And that makes a great



tain

difference. The computer plus 1010 data recorder was sold for about $200, and one dollar (on the black market of course, as there is no way of buying it legally) costs over 600zl. This amounts to over 120000zl.

The most popular car in Poland, the Fiat 126p, costs here about 360000zl. If you still can't figure out how much it was, let me give you one more number. My monthly pay, as a teacher of English at the Jagiellonian University, is 12500zl. No comments. A Polish phenomena.

If, however, you think these Ataris were long in the shops you are wrong. Within days they were gone. Pevex immediately ordered further shipments of 800XLs, disc drives, joysticks, data recorders and rom cartridges. This time they got more than 5,000 computers.

Despite their high price, micros are desperately needed in Poland. They are so much in fashion here that youngsters sell what they can, beg from their parents, save money and buy them either in Pevex or for our own currency at the so-called markets which are held in all the major towns in Poland.

The Polish government ended all restrictions when it came to individual export or import of personal computers, so there is no customs duty to pay.

This led to extensive import of Ataris, which in turn lowered their price at these markets from over 150000zl to about 120-130000 for a computer with a data recorder. This second lot of Pevex-imported computers was also sold within days.

In the meantime there was such a huge demand for Atari software that even Pevex couldn't cope. But the experiences of the former Spectrum users proved effective.

It took our Polish Atarians only a few weeks to organise a club. Although it does not act as an official Atari club, and does not provide membership cards, it serves an important role here being an informal association of all Polish Atari users.

Regular meetings are held four times a week in one of Cracow's cafeterias. One gains one's membership automatically when one buys an Atari computer, and there are no membership charges.

So Atari has become a leading computer brand in Poland. Of course there are regional differences, and in Lublin, for example, there are only about 50 Atari users, whereas there are over 2000 in Cracow, probably due to the location of the Atari club.

It is so strange that suddenly people who wouldn't even look at each other a few months ago now meet and talk as if they had been friends for years. Before the computer boom, I couldn't imagine myself talking about Basic, or about some mathematical formulas, with a complete stranger and what's more, one whose professional interests are utterly different from mine.

The gap between the scientific and humanistic minds is disappearing. I wouldn't like to suggest that we owe *all* this to Atari, although it's quite true in my case.

Most of my work can be done now much quicker and much more efficiently with the computer. Take translations. Before I bought my Atari I had to type and retype the translated text at least three times. Now Atariwriter does most of the work for me. The same applies to creating tests for my students and writing letters. I also never imagined that the adventure games I try to use during my English lessons would be so useful.

When a few years ago I read about the revolution in the field of computers and when I kept on seeing all these colourful advertisements of a great number of different brands of computers, I was afraid that we would be left far behind the mainstream of modern technology and would occupy some inferior position because the gap between our societies helps the growth of the gap between our technologies.

Now I see we have somehow managed to get past this dangerous stage. We are still behind, that is beyond question, but we are moving, and this brings hope.

No one likes to be last. The urge to make up for lost time is so great that there is now not a single magazine, or even newspaper, that wouldn't publish something about computers.

There are even computer-dedicated TV programmes like Halo, Komputer and Spektrum, radio broadcasts of computer news, and programs transmitted on-air.

There are whole newspapers dealing only with hardware and software problems like Bajtek, Komputer or Mikroklan. There are no magazines yet dedicated to a single computer, but who knows what will happen within a year?

Taking everything into consideration, the prospects for the Atari in Poland seem to look great, better than for any other computer here.

A lot depends on Atari themselves. Will they remain really reliable, and keep on supplying good programs? Much depends on Atari users, both here and abroad. The former must prove that their computers can do more than other machines. The latter, being far more experienced and having greater access to up-to-date information, could provide the Polish Atarians with their ideas and solutions to various problems.

I at least, am extremely grateful for all the letters and help I have received from Atari users from all over the world – mainly in England and the USA – with whom I got in touch.

When I needed them they were there, and that is what counts. We all do it for fun, for pleasure.

We deal with the so called artificial intelligence. We operate the machine. How it is then that we still are human and friendly? Even more friendly and human than before we bought these unhuman machines.

Best wishes to all of you! ■

● *Mr Menert would welcome correspondence from other Atari users. His address is: Tadeusz Menert, c/o Grzegorz Wrobel, ul. Skarbinskiego 10/31, 30-071 Krakow, Poland.*

Hey Presto! Now things are taking shape on screen

Part Three of STEPHEN WILLIAMSON's series on player missile graphics

WE have already seen how to design a player and convert that design into bit-mapped code that the player missile system can recognise. The program this month illustrates how to initialise the system so that the player shape can be displayed on screen.

Before looking at how the program is constructed it is helpful to be clear about how the Atari keeps track of its memory. It stores information or data in memory locations, also known as addresses. In a 64k computer these are numbered from 0 to 65535.

If in direct mode you type, say, POKE 755,4 then you are storing the number 4 in memory location 755. The number that is stored must be within the range 0 to 255, and is measured as 1 byte of memory. A memory location cannot hold more than 1 byte.

Last month we saw the method of bit-mapping, in which a single number within the range of 0 to 255 can represent a pattern of eight pixels, or a binary number which consists of a combination of eight 1s and 0s. Using this method is one way of working in a binary number system without actually having to program in the binary 1s and 0s which can be very tedious indeed.

Each 1 or 0 occupies 1 bit of memory – so in the player stripe each pixel in the eight pixel row occupies one bit of memory and one row of pixels uses one byte. 256 bytes are known as one page and four pages equal 1k of memory – or 1024 bytes.

If like most of the population, you are used to decimalisation this may all sound like the old illogical money system where 12 pence made one shilling, and 20 shillings made one pound. Don't worry, it is not vital to fathom the reasoning behind the Atari's memory number system, but it is important to remember that eight bits equal one byte, 256 bytes equal one page and four pages equal one k (1024 bytes).

Part of the Atari's memory is allocated to ROM (Read Only Memory) which contains the Basic interpreter and the operating system. Other areas of memory are known as RAM (Random Access Memory) and it is the RAM addresses where Basic programs are stored.

The first thing that is required when initialising the player missile system is the reservation of an area of RAM that is not needed by our Basic program, and where the bit-mapped data that represents the player and missile shapes can be stored.

In the case of single resolution players this must be a 2k section, and 1k for double resolution. The player missile system must then be informed where this area is so that it can be displayed on the TV screen by means of the GTIA chip. This method of taking information directly from RAM is known as Direct Memory Access, or DMA for short.

The start of this storage area is called the player missile base, or PMBASE for short. In theory we could reserve a 2k or 1k memory area in one of several places within RAM, but in practice it is usually allocated somewhere near the top to avoid clashing with Basic programs that are stored lower in RAM.

To find out where the top of RAM is on your Atari, type PRINT PEEK (106) and press Return. If you own an

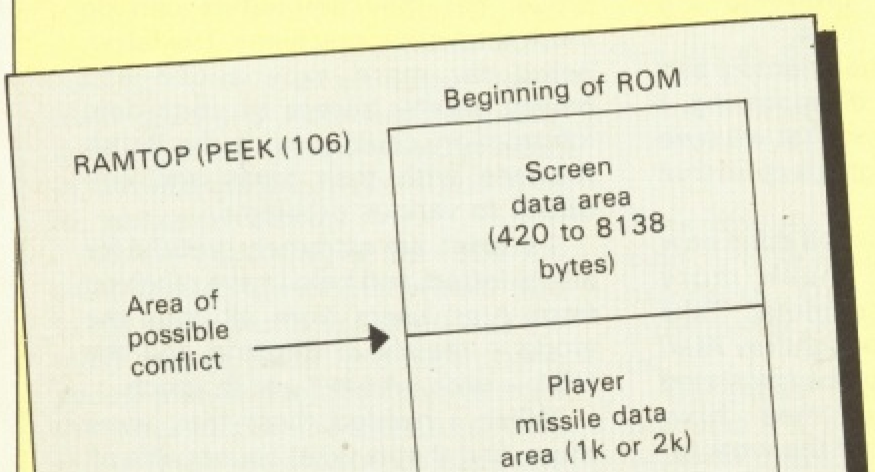


Figure I: Memory map of RAM with player data area reserved

Graphics Mode	Approximate size in bytes	Number of pages for PMBASE Single res	Below RAMTOP Double res
0	992	16	8
1	672	16	8
2	420	16	8
3	432	16	8
4	696	16	8
5	1176	16	12
6	2184	16	16
7	4200	24	24
8	8138	40	36
9	8138	40	36
10	8138	40	36
11	8138	40	36
12	1152	16	8
13	660	16	8
14	4296	24	24
15	8138	40	36

Figure II: Where to put the player missile data area in order to avoid conflicting with screen memory area

800XL you will see the number 160 on the screen. This will be different on models with less RAM, such as the 600XL.

The number 160 is the end of RAM expressed in pages. Immediately above this address is the start of the ROM area where the Atari Basic interpreter resides. The page number found in location 106 is known as RAMTOP, for obvious reasons.

If RAMTOP is 160 its address is 40960 bytes above the bottom of memory – 256 × 160 pages. This is 40959. Remember that the Atari counts from 0, and not from 1 as humans tend to do.

The player missile data area must obviously be placed somewhere below RAMTOP. There are two factors that decide just how near RAMTOP we can go. The first is that single resolution data must start on a 2k boundary. This means that PMBASE must begin at 8 pages or 16, 24, 32 and so on below RAMTOP – eight pages being 2k.

For double resolution players we need a 1k or 2k boundary – 4, 8, 12, 16 and so on pages below RAMTOP. Why the system demands a 1k or 2k boundary I am not sure but Antic has its own rules and we have to stick to them.

The other restriction is to make sure that the top of the player missile data area does not conflict with the screen memory area which is also stored at the top of RAM.

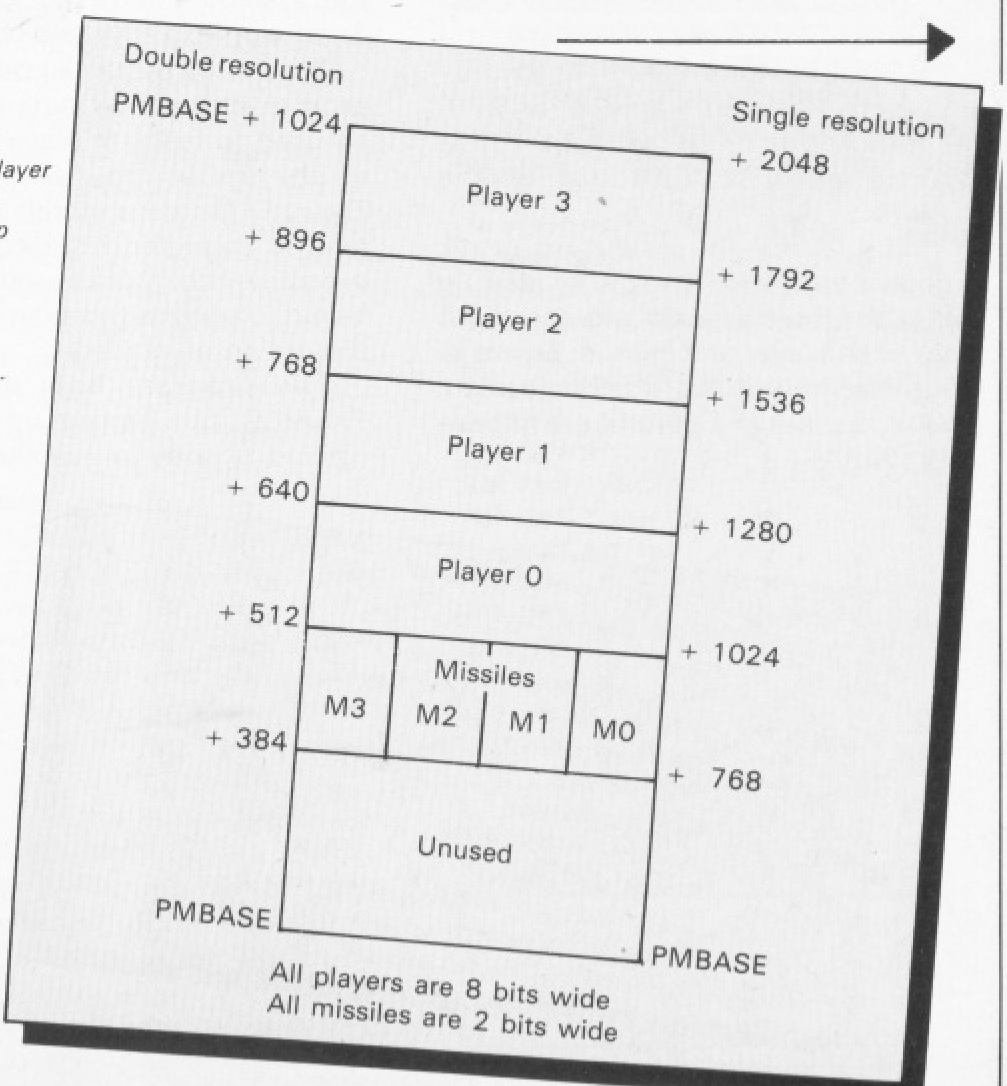
Figure I is a memory map of the top of RAM when the player missile data area has been reserved, and shows the possible conflict that may occur with the screen area if the player missile data area has been allocated too near the screen.

You can generally tell when a conflict has occurred. Strange combinations of numbers and letters mixed in with graphic symbols are seen on text screens, and odd mixtures of colours and shapes show up on graphic screens. This phenomenon is known as garbage.

Because no graphics screen occupies more than 8138 bytes – just under 8k – we could always store the player missile data area starting at 40 pages below RAMTOP. This is 10k under RAMTOP and would bring the player missile data storage area just below the beginning of the screen memory where there is no danger of conflict.

If memory is at a premium – which is especially the case with the 600XL – this can be a problem. For example, if you are using a Graphics Mode 0 screen which only occupies 992 bytes then you have effectively barred an area of about 7k that lies between the beginning of screen memory and

Figure III: Player missile data memory map



the end of player missile data, which does not leave much RAM left for Basic.

If you want to conserve memory refer to Figure II which is a table of how far below RAMTOP the PMBASE need be to avoid conflicting with the different graphics modes.

In the demonstration program we are using Graphics Mode 0 which, from Figure II, we see needs a PMBASE of 16 pages below RAMTOP in order to conserve memory, avoid conflict with the screen and still leave room for over 30k of Basic programs on an Atari 800XL, or around 11k on a 600XL. Line 60 performs this calculation and gives the PMBASE address to the variable PBM.

It is possible to move the screen memory to a different position in RAM somewhere below the player missile data area and allow the player missile area to be closer to RAMTOP. Most Basic programs do not require this, so it is good practice to stick to the first system to avoid conflict.

The player missile system must now be informed of where the PMBASE is. Line 700 does this by storing PMB in address 54279. Location 54279 is the place where Antic goes to find out where PMBASE is.

The 2k single resolution or 1k double resolution area is divided up into the specific data storage areas for each player and missile. Figure III is a map of how this area is allocated. All addresses in Figure III are relative to PMBASE.

Player/Missile 0	704
Player/Missile 1	705
Player/Missile 2	706
Player/Missile 3	707
Playfield 0	708
Playfield 1	709
Playfield 2	710
Playfield 3	711
Background/Border	712

Missiles normally take the colour of the corresponding player

Figure V: Colour and brightness registers

In the program we are displaying a Player 0 shape whose storage area begins at PMBASE plus 1024 and ends at PMBASE plus 1279, an area of 256 bytes. The data for the Player 0 shape must be stored somewhere within this area.

You will notice from Figure II that the first 768 bytes – or 384 bytes in double resolution mode – of the player missile data area are unused by the system. I have no idea why – Antic works in mysterious ways.

These free bytes can be handy for short machine code routines that can be used to animate players. As long as the system has been initialised correctly the data stored in this free area is protected from corruption. I will show how this unused space can be put to advantage next month when discussing animation.

The program only deals with Player 0, but setting up the other players is done in exactly the same way as long as you use the appropriate registers.

It is good practice to clear the player missile area of any garbage that may have accumulated there, otherwise unwanted pixels may light up on the screen. Line 90 clears the Player 0 data area with a loop which pokes in zeros.

Once the area has been cleared we can start to load the bit-mapped numbers that correspond to our shape into the Player 0 data area. How far into the player data area we put the data determines the vertical position within the player stripe when the player is displayed on the screen.

If the data is loaded from the beginning of the data area – in other words PMBASE plus 1024 – then the shape will appear at the top of the screen.

Line 100 loads the Player 0 shape data commencing 140 bytes beyond the start of the Player 0 data area so that the player will appear 140 pixels down the player stripe, or part way down the TV screen.

This program leaves room for a 20 row player. As we are only using an 11 row design the rest of the DATA statement in line 170 is filled with zeros.

If you have designed your own

No playfield (switches off screen display)	0
Narrow playfield	1
Standard playfield	2
Wide playfield	3
Enable missiles	4
Enable players	8
Singe resolution	16
Enable DMA (switch on screen display)	32
Default value if no options set: (standard playfield, enable DMA and two line double resolution)	34

Figure IV: Location 559 DMA Control Register

Black	0
Rust	16
Red-Orange	32
Dark Orange	48
Red	64
Dark Lavender	80
Cobalt Blue	96
Ultramarine	112
Medium Blue	128
Dark Blue	144
Blue-Grey	160
Olive Green	176
Medium Green	192
Dark Green	208
Orange Green	224
Orange	240

Brightness range 0 to 14 (even values only). Add brightness value to colour value. 0 is darkest shade. 14 is brightest

Figure VI: Colour values to change colour registers

Player 0	53248
Player 1	53249
Player 2	53250
Player 3	53251
Missile 0	53252
Missile 1	53253
Missile 2	53254
Missile 3	53255

A value of 48 in these registers puts the player at the left hand edge of the screen and 208 puts the player on the right hand edge

These values may vary slightly depending on how your TV is adjusted

Figure VII: Horizontal registers

player, either using graph paper as detailed last month or by means of the Player Designer program, you might like to alter the program and substitute your own bit-mapped numbers in line 170.

In line 110 various options associated with the player missile system are switched on by poking address 559. Figure IV is a list of options available. To decide what number to poke simply add up the option values.

In the program I have set up a standard playfield (2) with enable missile (4), enable player (8), single line resolution (16) and enable DMA (32) – a total of 62.

Notice that it is possible to have a narrow playfield, as well as a wide playfield. To see how this works type in POKE 559,33 – narrow playfield plus enable DMA.

Note that the text is in a peculiar position as the screen editor does not automatically adjust for the narrow screen. POKE 559,35 gives a wide screen playfield. POKE 559,34 returns to a standard playfield.

POKE 559,0 turns off all options, including the screen display. When this happens GTIA stops displaying the screen, and the operating system can now process data approximately 30 per cent quicker. This option is useful if you are using a Basic program that is doing a lot of calculating.

POKE 559,0 lets the program get on with its calculations at increased speed while you twiddle your thumbs and wait for the thing to finish. POKE 559,34 switchs the screen back on, to hopefully display the correct answer to whatever task you have set the computer.

Even though the demonstration program does not use missiles I have included the enable missile option. It is not strictly necessary, but it does no harm. The program is designed to represent a standard player missile initialisation, adaptable to many other situations where you need to set up the system.

Line 120 sets the colour of the player. The memory locations associated with player missile graphics are often called registers. Figure V is a list of the colour registers, and the values that can be poked into them are listed in Figure VI.

In line 120 the colour chosen has a value of 204 which is made up of medium green (192) plus a brightness level of 12. This number is then poked into location 704, the colour register for Player 0.

Line 130 sets the horizontal position of the Player 0 stripe to 140 so that the player will appear near the centre of the screen. Try altering line 130 to a different value – between 0 and 255 – and see what happens.

Figure VII gives the horizontal registers for the other players and missiles. It is important to set the horizontal register. If not set, the register value defaults to 0, which means that the player stripe is so far to the left as to be actually off screen.

Now all that is required is to throw the switch that turns on the player missile graphics. This is done in line 140 by POKE 53277,3. Voila – the bug appears.

Three options are available with register 53277. A value of 1 turns on the missiles only, 2 turns on the players and 3 turns on both players and missiles. Again it is unnecessary to turn on the missiles if they are not needed, but I do so as a matter of course.

In this program no data has been loaded into the missile data area, so no missile will appear, and even if some stray bytes of information have crept in, because the horizontal positions are still at 0 – their default setting – they will still not appear and spoil the look of the display.

As mentioned before the purpose of the demonstration program is to show how to perform a fairly standard initialisation operation for the player missile system.

Setting up the system can be a little tricky – forgetting to set one register, or putting the shape data into the wrong area can stop the system working properly.

Perhaps the best means of finding your way around the initialisation process is to experiment with the program, changing it and adapting it to set up a different player, with a different shape, colour and position on screen. ■

Try displaying more than one player at a time, or switch on a double resolution player. Trial and error methods often work wonders.

● *You will note that the bug does not actually do anything in the program. It is pretty lifeless, just sitting there playing dead. Next month I will breathe life into it by means of animation*

```
10 REM  PLAYER MISSILE GRAPHICS
20 REM  by Stephen Williamson
30 REM      FOR ATARI USER
35 REM    PM INITIALISATION
40 REM    PROGRAM I - PART 3
50 GRAPHICS 0:SETCOLOR 2,0,0:POKE 755,
0
60 PMB=PEEK(106)-16
70 POKE 54279,PMB
80 PMBASE=PMB*256
90 FOR J=0 TO 255:POKE PMBASE+1024+J,0
:NEXT J
100 FOR J=0 TO 19:READ A:POKE PMBASE+1
024+140+J,A:NEXT J
110 POKE 559,62
120 POKE 704,204
130 POKE 53248,130
140 POKE 53277,3
150 GOTO 150
170 DATA 40,146,214,254,238,254,238,18
6,170,56,16,0,0,0,0,0,0,0,0,0
```

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	15706	20	16910	30	14396
35	15268	40	14570	50	6965
60	2770	70	2866	80	2903
90	7736	100	9433	110	1973
120	2090	130	2560	140	2136
150	1623	170	9502		

American $cene

EDWARD SHARK reports

THE Sunshine State is the source of new software this month. Florida is the home of Disneyworld, Miami Vice, the Everglades and Scott Adams of Adventure International.

Scott is about to release his first title for the Atari ST in the form of Spiderman. I am not the greatest fan of Adventure International, as I don't think they have really advanced in the field of software design.

Apart from the scrolling graphics controlled by the mouse, Spiderman does not look that much different from the 8 bit version.

I would not pay money for this title. Although it works in both mono and colour, the mono hi-res mode is very disappointing.

For lovers of Print Shop on the XL/XE, Unison have produced a very similar program on the ST called Printmaster, which will design letterheads, banners and signs.

You can print in a range of font styles, and there are a large number of pictures which can be incorporated into your design. You may also design your own pictures and store them on a data disc. At $39.95 this is a very useful package indeed.

Moving back to Print Shop, news of a new data disc has just arrived, although no other details are available apart from the price, which is $9.95.

Microprose Software has released a war game simulation for the ST called Conflict in Vietnam as part of their new command series. This simulation gives you the option of taking charge of either the free world or the communist forces.

Activision have finally released the long-awaited Music Studio, but you will need a colour monitor to run it. The package contains a music paintbox where you may doodle with notes and experiment with different compositions. The program can drive the Midi interface which will allow you to connect your synthesiser to the ST.

When you have completed the composition you can even add lyrics and save the lot to disc. This application could be ideal for educational purposes. Activision UK should have it ready soon and it will only cost you $49.95.

It is a comfort to see that it is not only American software that is being distributed in the States, the Brits have landed as well.

Software written in the UK is making a significant impression on the market. Laser Software International have managed to score heavily with Laserbase, and Mastertronics and Firebird are doing well.

Because the ST is a relative newcomer we do not often see the real top end business applications programs. However, Abacus of Michigan has written a very powerful electronics design tool, PC Board Designer, a true CAD program.

Enter your design parameters and the computer will modify them for you. You may position components by using the mouse and move them around to make them fit into the best position.

The most powerful feature of the program is the tracing aspect, where the computer will draw the tracks of a pcb very accurately.

At $339.99, it is not a program that everyone will clamber for, but it sure will be an advance for the ST.

I received an interesting call from Chicago this morning from a company new to the Atari scene, Mark Williams Co. They have been producing software for the Macintosh and have now turned to its rival, the ST.

They have two titles ready for release. The first is a C compiler purported to be the best thing since salami and rye, and they will also be marketing a new language called Coherent.

Not much is known about these titles but I should have more details next month.

Action Software Supplies, a new distributor of ST software in the UK, has negotiated a deal with a number of small software houses in the States to import products which would not normally be seen over here.

The programs range from games to specialist business applications. Details are scarce at present but news should break soon.

A metamorphosis has taken place with two titles from the 8 bit stable: Joust and Battlezone have been converted to run on the 520/1040.

Atari is the culprit, but I am very happy to see my favourite game Joust on the new machines.

The game play is similar to that on the old machines, and the enjoyment is as it was when I first booted these programs from my 810 disc drive. The prices are reported to be $39.95 each.

On the 8 bit front Beach Head 2 from Access should be winging its away across the ocean soon, and it won't be long before US Gold has a cheaper UK version available. This is no different from the version that was released for the Commodore 64 and Sinclair Spectrum over a year ago.

My advice would be to wait for the US Gold version rather than pay about £35 for the imported one.

Some new titles to look for are N-Vision by Activision, Rogue from Epyx and Universe II from Omnitrend. More details next month.

SPACE MAZE



THIS month's game takes us once more into the realms of outer space. Your task is to pilot a small one-man spaceship around the hazards of an alien planet.

There are four stages, each a little harder than the previous one. First manoeuvre your ship between the rocky outcrops into the cavern below.

You may consider collecting some fuel as you go – you'll certainly need it later!

Next you must navigate the tunnels – but don't hit anything – down to the next level. Again, don't forget that vital re-fueling point.

In the third level you have to steer your way around the asteroids and down to the fuel point. But where do you go from there? There is only one exit, and only one way to it . . .

The fourth level is the hardest of all, and we're not giving you any hints.

Controlling your ship is simple. Push left or right on the joystick to steer, and forward to use your main engines to go up.

You can give a quick burst on the main engines to stop moving left or right, and gravity will always pull you down if you don't do anything else.

The game is written in Basic, with a machine code routine to move the spaceship player vertically. The screens are drawn, using a redefined character set, in Antic Mode 4, which allows for all the colours required.

By STEVEN DAVIES

Make sure that you type all of the numbers in any DATA statements exactly as printed, or you may crash your machine and have to start again. Always ensure you have saved a copy before trying to run it.

Be especially careful when typing in the ? statements in lines 1370 to 2330. Make sure you get the right number of spaces so that the ends of the lines in each of the four blocks match up with each other.

We have printed these lines slightly wider than normal to help you to see the spacing better, but don't forget that they will overlap on to TWO screen lines on your TV set.

You will find de-bugging much simpler if you can run a printout in 80 column format to see the whole line at once. If you don't have a printer, try typing POKE 82,0 to set the left screen margin to zero, thus showing you two more characters per line than normal. (This is a good tip for typing in those "long" lines in programs which just don't seem to fit.)

The checksum will always let you know if you have made any mistakes. ■

```
1 REM ***************************
2 REM ******* SPACE MAZE *******
3 REM **** BY STEVEN DAVIES ****
4 REM **** WRITTEN: 13/1/86 ****
5 REM * (C) ATARI USER JULY 1986 *
6 REM ***************************
10 GRAPHICS 0:POKE 752,1:POKE 710,0:PO
SITION 3,10:? "PLEASE WAIT-INITIALIZIN
G 40 SECONDS ":FOR TI=1 TO 900:NEXT TI
30 XX=120:YY=5:DR1=0.01:DR2=0.01:GP=0.
5:MOVE=11:FUEL=150:HITCL=53278:HIT=532
52:LIFE=3:GI=0.01
40 POKE 559,0
50 GOSUB 710:REM VB
60 GOSUB 1110:REM CH-SET
70 REM *******MAIN LOOP************
80 XX=120:YY=20:POKE PLX+1,F1:POKE PLY
+1,F2:GP=0.5:POKE HITCL,0:POKE 752,1
90 POKE 708,CO1:POKE 709,CO2:POKE 711,
CO4:POKE 756,CHSET/256:POKE 704,9
110 POSITION 0,0:? "F-":POSITION 2,0:?
 FUEL:POKE 559,62
130 S=STICK(0):XX=XX+(S=7 OR S=6)-DR1-
(S=11 OR S=10)+DR2
140 YY=YY-(S=14)+GP
150 POKE PLX,XX:POKE PLY,YY:POKE PDIR,
MOVE:GP=GP+GI
160 IF S=11 OR S=10 THEN DR1=0.4:DR2=0
.01:MOVE=30:SOUND 0,150,8,6:REM LEFT
170 IF S=7 OR S=6 THEN DR2=0.4:DR1=0.0
1:MOVE=19:SOUND 0,150,8,6:POKE 77,0:RE
M RIGHT
180 IF S=14 THEN DR1=0:DR2=0:GP=GP-0.0
5:MOVE=40:SOUND 0,150,8,8:REM UP
190 IF S=15 THEN MOVE=11:SOUND 0,0,0,0
200 IF MOVE>11 THEN FUEL=FUEL-1:POSITI
ON 2,0:? FUEL;" "
210 IF PEEK(HIT)<>0 THEN GOSUB 340:REM
 CRAH ROUTINE
220 IF  NOT FUEL THEN GOSUB 340
230 IF PEEK(53261)<>0 THEN GOSUB 390:R
EM LAN-ROUTINE
240 IF PEEK(53262)<>0 THEN 640:REM END
 OF GAME
250 IF XX>198 AND YY>195 THEN POSITION
 24,10:? "   ":POSITION 24,11:? "   ":
POSITION 33,18:? "  "
260 IF YY>EXY AND XX>EXX THEN ? "K":PO
KE 559,0:POKE PLX,120:POKE PLY,20:GOSU
B SCREEN
280 IF XX<43 THEN XX=42
290 IF XX>200 THEN XX=200
300 IF YY<5 THEN YY=5:GP=0.5
310 POKE HITCL,0:GOTO 130:REM MAIN LOO
P END
320 REM *****CRASH ROUTINE***********
340 POKE PDIR,51:SOUND 0,250,0,69:SOUN
D 1,200,2,66
350 FOR T=1 TO 168:POKE 704,T:NEXT T
360 SOUND 0,0,0,0:SOUND 1,0,0,0:POKE P
LX,120:POKE PLY,20:LIFE=LIFE-1
370 IF LIFE=0 THEN GOTO 530
380 FUEL=150:GOTO 80
390 REM *******LANDING ROUTINE*******
400 IF PEEK(53261)<>0 AND GP>0.6 THEN
RETURN
410 FOR SU=15 TO 0 STEP -3:SOUND 0,5,1
0,SU:NEXT SU
420 FUEL=FUEL+10:SC=SC+2:POSITION 2,0:
? FUEL
430 IF FUEL>360 THEN POKE PDIR,11:GP=-
0.4:RETURN
440 FOR T=1 TO 60:NEXT T
450 GOTO 400
460 REM ***************************
470 GR=5:GRAPHICS 0:POKE 559,0:GOSUB 2
350
472 POKE 710,74:POKE 708,74:POKE 709,0
480 POSITION 15,1:? #6;"SPACE MAZE"
490 POSITION 12,2:? #6;"YB NEVETS SEIV
AD"
500 POSITION 12,5:? #6;"PRESS START KE
Y"
510 POSITION 13,6:? #6;" TO PLAY GAME"
512 POSITION 3,12:? "/‾‾‾\"
515 POKE PDIR,11:POKE 559,62:FOR T=1 T
O 500:NEXT T:SOUND 0,150,8,8
517 FOR T=208 TO 63 STEP -1:POKE PLY,T
:NEXT T
518 FOR T=68 TO 213:POKE PLX,T:NEXT T
519 POSITION 11,2:? " BY STEVEN DAVIES
 ":SOUND 0,0,0,0:POKE 710,10:POKE 708,
14
520 FOR SU=60 TO 0 STEP -1:SOUND 0,5,1
0,SU:NEXT SU:GOTO 620
530 REM *****END OF GAME ROUTINE***
540 GRAPHICS 1+16:? #6;"  YOU HAVE FAI
LED          "
550 POKE PLX,0:POKE PLX+1,0:POKE PLX+2
,0:IF SC>HISC THEN HISC=SC:GI=0.01
570 POSITION 4,6:? #6;" YOUR SCORE=";S
C
580 POSITION 4,8:? #6;" HIGH SCORE=";H
ISC
590 POSITION 2,12:? #6;" PRESS START K
EY "
600 GOTO 620
610 REM *****************************
620 IF PEEK(53279)=6 THEN LIFE=3:SC=0:
FUEL=150:GOTO 1360
630 GOTO 620
640 REM ****** COMPLETED MISSION****
641 POKE PLX,0:POKE PLY,0
642 FOR T=1 TO 250:POKE 712,T:NEXT T
643 GR=4:GRAPHICS 0:POKE 559,0:POKE PL
X,0:POKE PLX+1,0:POKE PLX+2,0:SOUND 0,
0,0,0
645 GOSUB 2350:POKE DL+10,2:POKE DL+8,
5
646 IF SC>HISC THEN HISC=SC
648 POKE 710,12:POKE 708,14:POKE 709,0
650 POSITION 9,3:? " *** WELL DONE **
*"
670 POSITION 0,5:? "▀▀▀ YOU HAVE COMPL
ETETD YOUR MISSION▀▀▀"
680 POSITION 7,8:? "YOUR SCORE=";SC;:?
 "   HIGH SCORE=";HISC
690 POSITION 4,11:? " GOOD LUCK ON YOU
R NEXT MISSION"
691 POSITION 12,14:? "PRESS START KEY"
:POKE 559,62:GI=0.02:POKE HITCL,0
700 GOTO 620
710 REM INITIALIZE VERTICAL BLANK
720 FOR I=1536 TO 1706:READ A:POKE I,A
:NEXT I
730 FOR I=1774 TO 1787:POKE I,0:NEXT I
740 REM SET PMBASE AND DRAW PLAYERS
750 PM=PEEK(106)-16:PMBASE=256*PM
760 FOR I=PMBASE+1023 TO PMBASE+2047:P
OKE I,0:NEXT I
770 FOR I=PMBASE+1025 TO PMBASE+1033:R
EAD A:POKE I,A:NEXT I
780 FOR I=PMBASE+1281 TO PMBASE+1291:R
EAD A:POKE I,A:NEXT I
790 FOR I=PMBASE+1537 TO PMBASE+1562:R
EAD A:POKE I,A:NEXT I
800 RESTORE 1030:FOR I=PMBASE+1 TO PMB
ASE+61:READ A:POKE I,A:NEXT I
810 PLX=53248:PLY=1780:PLH=1784
820 POKE 623,1:POKE 1788,PM+4:POKE 532
77,3:POKE 54279,PM
830 X=USR(1696)
840 REM ************************
850 PCOL0=704:PCOL1=705:POKE PCOL0,216
:POKE PCOL1,218:POKE 706,218:REM PLAYE
R COL
860 POKE PLH,9:POKE PLH+1,15:POKE 5325
6,0:POKE PLH+2,25:POKE 53258,1:REM PLA
YER HEIGHT + WIDTH
870 POKE PLX,66:POKE PLY,208:REM PLAYE
R 0 INITIAL POS
880 POKE PLX+1,0:POKE PLY+1,0:POKE PLX
+2,0:POKE PLY+2,0:REM PLAYER I INITIAL
 POS
890 PDIR=1772:POKE 1771,PM:POKE 53257,
1:RETURN
900 REM VERT BLANK ROUTINE DATA
910 DATA 162,3,189,244,6,240,89,56,221
,240,6,240,83,141,254,6,106,141,255,6,
142,253,6,24,169,0,109,253,6
920 DATA 24,109,252,6,133,204,133,206,
189,240,6,133,203,173,254,6,133,205,18
9,248,6,170,232,46,255,6,144
930 DATA 16,168,177,203,145,205,169,0,
145,203,136,202,208,244,76,87,6,160,0,
177,203,145,205,169,0,145,203
940 DATA 200,202,208,244,174,253,6,173
,254,6,157,240,6,189,236,6,240,48,133,
203,24,138,141,253,6,109,235
950 DATA 6,133,204,24,173,253,6,109,25
2,6,133,206,189,240,6,133,205,189,248,
6,170,160,0,177,203,145,205,200
960 DATA 202,208,248,174,253,6,169,0,1
57,236,6,202,48,3,76,2,6,76,98,228,0,0
,104,169,7,162,6,160,0,32,92
970 DATA 228,96
980 REM DRAW PLAYERS
990 DATA 0,0,28,28,31,31,28,28,0,0
1000 DATA 126,231,239,231,239,239,239,
255,255,255
1010 DATA 24,24,126,126,255,255,0,0,25
5,255,60,60,60,126,60,60,60,255,195,25
5,219,126,126,126,60
1020 REM ***********************
1030 DATA 0,0,0,0,0,0,0,0,0
1040 DATA 24,60,60,60,126,90,195,129
1050 DATA 0,0,152,252,124,60,126,90,19
5,125,0,0
1060 DATA 25,63,62,60,126,90,195,129
1070 DATA 0,0,24,60,60,60,126,90,219,1
89,0,0
1080 DATA 0,0,152,182,94,61,87,90,227,
170,0,0
1090 DATA 24,60,60,60,126,90,195,129
```

```
1100 REM ****DATA FOR PM SHAPE******
1110 RESTORE 1140:CHSET=(PEEK(106)-8)*
256
1120 READ C:IF C=-1 THEN 470
1130 FOR J=0 TO 7:READ A:POKE CHSET+C*
8+J,A:NEXT J:GOTO 1120
1140 DATA 97,0,223,223,223,0,253,253,2
53,56,0,0,0,0,32,0,0,0
1150 DATA 99,255,223,247,255,187,239,2
54,255,100,0,0,0,1,7,15,111,255
1160 DATA 101,5,111,255,255,255,255,25
5,255,102,160,246,255,255,255,255,255,
255
1170 DATA 103,128,192,240,240,248,248,
253,255,104,0,0,0,1,19,27,191,255,33,0
,0,0,129,199,247,255,255
1180 DATA 34,0,0,0,129,199,247,255,255
,34,0,0,0,129,227,239,255,255,35,0,5,4
7,191,255,253,223,254
1190 DATA 36,128,192,228,237,255,191,2
51,239,37,0,0,32,180,254,252,222,247
1200 DATA 114,127,127,127,96,96,127,12
7,127,39,255,255,255,7,7,255,255,255
1210 DATA 40,127,127,127,243,243,127,1
27,127,41,254,254,254,207,207,254,254,
254,42,255,255,255,255,255,255,255,255
1220 DATA 43,0,128,224,248,252,252,255
,255,44,240,252,254,7,7,255,255,255
1230 DATA 45,0,1,7,31,63,127,255,255,4
6,3,3,7,15,28,56,112,255
1240 DATA 47,192,192,224,240,56,28,14,
255
1250 DATA 48,251,95,123,79,15,0,0,0,49
,251,223,251,255,255,59,27,8
1260 DATA 51,251,223,239,205,135,7,3,3
,52,251,95,111,77,7,7,3,3
1270 DATA 53,3,7,15,13,63,127,110,255,
54,3,14,15,59,31,5,3,1
1280 DATA 50,251,223,236,197,129,0,0,0
1290 DATA 16,0,168,136,136,136,136,168
,0,17,0,32,32,32,32,32,32,0
1300 DATA 18,0,168,8,168,128,128,168,0
,19,0,168,8,40,8,8,168,0
1310 DATA 20,0,136,136,168,8,8,8,0,21,
0,168,128,168,8,8,168,0
1320 DATA 22,0,168,128,168,136,136,168
,0,23,0,168,8,8,32,32,32,0
1330 DATA 24,0,168,136,168,136,136,168
,0,25,0,168,136,168,8,8,8,0
1340 DATA 55,0,0,0,0,32,0,0,0
1350 DATA 38,0,168,128,160,128,128,128
,0,13,0,0,0,168,168,0,0,0,0,0,0,0,0,0,
0,0,0,-1
1360 GRAPHICS 0:POKE 82,0:POKE 84,9:POKE 559,0
1370 ?
1380 ? "                             dg   "
1390 ? "                            dcc   "
1400 ? "                 dg        dcccD  "
1410 ? "                dccg      dcccccA "
1420 ? " defghABCDE defghcccc█     deccccccccg"
1430 ? "ccccccccccccccccccccccJ   Jcccccccccccc"
1440 ? "ccccccccccccccccccccccJ   Jcccccccccccc"
1450 ? "ccccccccccccccccccccccJ   Jcccccccccccc"
1460 ? "█MONOMONOMONOMONOMONOMOJ   Jcccccccccccc"
1470 ? "J                        PQRSTcccccc"
1480 ? "J                            PQRSTcc"
1490 ? "J                               hccc"
1500 ? "J                              dcccc"
1510 ? "J  HK            deg         Vccccc"
1520 ? "J  rG           hAcccDAg       cccc"
1530 ? "J  rG        defccccccccD         c"
1540 ? "J  rGL     defccccccccccccccD     ccc"
1550 ? "█ddrGJJJJJJdecccccccccccccccccDE   ccc"
1560 GR=4:GOSUB 2350
1580 SCREEN=1600:EXY=206:EXX=170:F1=74:F2=200:C01=12
:C02=12:C04=52:GOTO 80
1600 ? "cccccccccccccccccc     cccccccccccccccc"
1610 ? "cccccccccccccccccc     cccccccccccccccc"
1620 ? "cccccccccccccccccc     cccccccccccccccc"
1630 ? "cccccccccccccccccc     cccccccccccccccc"
1640 ? "  X      X   X          X  X        "
1650 ? "X                 X  X           X  "
1660 ? "X   X            X             X    "
1670 ? "X        X  X  X X    X  X   X   XX "
1680 ? "X      X      X   X X       X    X  "
1690 ? "X    X     X         X  X  X   X    "
1700 ? "X                   X        X      "
1710 ? "aaaaaaaaaaaaaaaaaa     aaaaa    aaaaaaaa"
1720 ? "aaaaaaaa               aaaaa    aaaaaaaaa"
1730 ? "aaaaaaa                aaaaa    aaaaaaaaa"
1740 ? "aaaaaa     aaaaaaaaaaaaaaaaaaaaaaaaaaaaaa"
1750 ? "aaaa      aaaa      aaaaaMONOaaaaaaaaa"
1760 ? "aaaa      aaaa      aaaaa    aaaaaaaaa"
1770 ? "aaaa      aaaa      aaaaa    aaaaaaaaa"
1780 ? "aaaa                aaaaa    aaaaaaaaa"
1790 ? "aaaaaaaaa           aaaaa    aaaaaaaaa"
1800 ? "aaaaaaaaaaaaaaa     aaaaa    aaaaaaaaa"
1810 ? "aaaaaaaaaaaaaaaaaa               aaaaa"
1820 ? "aaaaaaaaaaaaaaaaaa              aaaaaa"
1830 ? "aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa    aaaaa"
1840 SCREEN=1860:EXX=161:EXY=206:F1=64:F2=165:C01=0:
C02=12:C04=52:GOTO 80
1860 ? " dCDE                    dedeg      dCDE "
1870 ? "Vccccg                  VcccRR      Vccccg"
1880 ? " PQRST  defg     d     RST        d RSTRS"
1890 ? "       Vccccg   Vcg              Vcg     "
1900 ? "        RSTRS   VRT  defg        VRT     "
1910 ? "   CE                 VcccQ          defg "
1920 ? "  CcccD                TRST hA      VcccQ "
1930 ? " VccccR  hA   BCE          Vccfg     TRST "
1940 ? "    SRP  Vccg VcccE VgUg   STcc          "
1950 ? "          SQR  SPQR  Sccg    PR          "
1960 ? "DE                    VccR          BCE   "
1970 ? "QR                 dE    RR        VcccE  "
1980 ? "  dCDE  de       VcR  dE            SPQR  "
1990 ? " VcccS VccK      S  dccK     dCDE    dedg"
2000 ? "  PcS   RST dE     VccccK   VcccS  VccRR"
2010 ? "   P        VcR      SSRPR    PcS     RST "
2020 ? "     dEdeg  S   de            P          "
2030 ? "    VcccRR      VccK      dCDE     dEdeg  "
2040 ? "     RST          RST    VcccS    VcccRR  "
2050 ? "                          PPS      RST    "
2060 ? "        de        dEeeg           de      "
2070 ? "       VccK      VcccRR         VccK      "
2080 ? "        RST        RST  aaaaaaaa RST      "
2090 SCREEN=2110:EXY=206:EXX=55:F1=146:F2=200:C01=12
:C02=12:GOTO 80
2110 ? "cccccc   ccccccccccccccccccccccccccccccc"
2120 ? "ccccc    cc                            c"
2130 ? "cc0     cc                             c"
2140 ? "cc      cc      ccccccccccccc  JJJJJJJ  c"
2150 ? "cc    Mcc     ccccccccccccccc  JJJJJJJ  c"
2160 ? "cc     cc     ccc             ccc  J      J  c"
2170 ? "cc0    cc     ccc             ccc  J      J  c"
2180 ? "cc     cc     ccc             ccc  J   J  J  c"
2190 ? "cc    Mcc     ccc             ccc  J   J  J  c"
2200 ? "cc0    cc     ccc             cccJJJ  J  J  c"
2210 ? "cc     cc     ccc             ccc     J  J  c"
2220 ? "cc    Mcc     ccc             ccc     J  J  c"
2230 ? "cc     cc     ccc             cccJJJJJJ  J  c"
2240 ? "cc0    cc     ccc             ccc  JJJJ  J  c"
2250 ? "cc     cc     ccc             ccc  JJJJ  J  c"
2260 ? "cc    Mcc     ccc             ccc  JJJJ  J  c"
2270 ? "cc     cc     ccc             ccc  JJJJ  J  c"
2280 ? "cc     cc     ccc             ccc  JJJJ  J  c"
2290 ? "cc            cccccccccccccccc  JJJJJJJ  c"
2300 ? "cc            cccccccccccccccc           c"
2310 ? "cc                            dg          "
2320 ? "cc     cc                    dccg         "
2330 ? "ccccccccccccccccccccccccccccccccccccccccc"
2340 EXX=999:F1=56:F2=198:POKE PLX+2,118:POKE PLY+2,
99:C01=10:C02=10:C04=52:POKE 710,182:GOTO 80
2350 DL=PEEK(560)+256*PEEK(561)
2360 POKE DL+3,68:FOR T=6 TO 28:POKE DL+T,GR:NEXT T
2370 RETURN
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
1	4273	2	4938	3	5654
4	5126	5	5863	6	4273
10	21274	30	16810	40	1867
50	3398	60	6347	70	8659
80	13516	90	12403	110	9554
130	9527	140	2985	150	9761
160	14455	170	16605	180	12905
190	6274	200	9629	210	13854
220	4791	230	13104	240	11737
250	16129	260	15599	280	3496
290	3942	300	4646	310	13343
320	10284	340	8296	350	5948
360	12145	370	4507	380	2992
390	11493	400	7205	410	8522
420	8195	430	8666	440	3645
450	1614	460	13791	470	6953
472	6036	480	5827	490	7136
500	6927	510	6244	512	3355
515	11377	517	7757	518	6378
519	13509	520	10216	530	15625
540	7874	550	13305	570	6917
580	7083	590	7154	600	1624
610	4651	620	9342	630	1624
640	16307	641	4423	642	5902
643	14645	645	6380	646	4832
648	6008	650	6170	670	13898
680	10530	690	9746	691	12721
700	1624	710	15886	720	7544
730	6231	740	16076	750	5580
760	9048	770	10366	780	10376
790	10387	800	12197	810	5046
820	9353	830	2092	840	4063
850	18707	860	24785	870	17617
880	22497	890	8116	900	5462
910	15196	920	15151	930	15146
940	15124	950	15492	960	15141
970	1915	980	3182	990	4679
1000	7011	1010	13735	1020	3643
1030	3772	1040	4828	1050	6424
1060	4842	1070	6137	1080	6158
1090	4828	1100	5438	1110	6548
1120	4334	1130	10341	1140	8269
1150	9896	1160	11405	1170	14303
1180	13832	1190	10704	1200	10715
1210	16649	1220	10452	1230	8667
1240	5632	1250	9339	1260	8905
1270	8388	1280	5181	1290	9122
1300	8735	1310	8513	1320	9138
1330	9259	1340	3826	1350	11812
1360	7664	1370	254	1380	4359
1390	4413	1400	5384	1410	6412
1420	9785	1430	10694	1440	10694
1450	10694	1460	9979	1470	6052
1480	5372	1490	5106	1500	5227
1510	6901	1520	6728	1530	6852
1540	8661	1550	10727	1560	2915
1580	12792	1600	10442	1610	10442
1620	10442	1630	10442	1640	4850
1650	4850	1660	4850	1670	6026
1680	5522	1690	5298	1700	4626
1710	16260	1720	15783	1730	15590
1740	22538	1750	17065	1760	16555
1770	16555	1780	13853	1790	16169
1800	19643	1810	16555	1820	16748
1830	22924	1840	12717	1860	6220
1870	7669	1880	7392	1890	6161
1900	6324	1910	6188	1920	6729
1930	7659	1940	7963	1950	6343
1960	5503	1970	5774	1980	6742
1990	8072	2000	8526	2010	6547
2020	5742	2030	7432	2040	6842
2050	5182	2060	5726	2070	6356
2080	7028	2090	11438	2110	11608
2120	6047	2130	5404	2140	11936
2150	12367	2160	7845	2170	7939
2180	8185	2190	8415	2200	9129
2210	8785	2220	9015	2230	10055
2240	9299	2250	9205	2260	9435
2270	9205	2280	9205	2290	11936
2300	7856	2310	5128	2320	5801
2330	12010	2340	16977	2350	4496
2360	9067	2370	1498		



STOCKSOFT

ATARI ONLY *MAIL ORDER ONLY

1050 DUPLICATOR
Based on a 6502 chip, is a replacement board for your 1050 drive. Easy 5 minute installation, compatible with both XL and XE. Gives — read and write to B/sectors, custom formats, double sectors, also true double density, and turbo-drive giving up to 18 times faster read and write. Comes complete with all hardware, software, fitting instructions. **£199.** Rush your order now! Or send large S.A.E. for further information.

HAPPY ENHANCEMENT
Now in stock with latest revision 7 at only **£165** post free.

XL FIXER
Will allow you to play games witten for 400, 800 on your XL or XE. Tape version **£6;** disk version **£10.** Post free. 48k.

1050 DISC DRIVES
With the below enhancements fitted:
(a) with 1050 duplicator fitted only **£350** post free.
(b) with "Happy" fitted only **£295** post free.
(c) with Warp Drive fitted only **£250** post free.

WARP DRIVE
Replacement board for 1050 Disc Drive only **£99** post free.

XE 130 DISK DUPE
Uses all 128k, copies disk in 1 pass. No more changing disks — will not copy disks protected by bad sectors. 128k. Disk only **£10** post free.

TAPE CRACKER — REV 2 — 48k
SIDE A: Will list M/C progs to screen, you edit download your personalised version with or without M/C knowledge. Hours of fun changing text to leave personal messages on screen. Stuck on an adventure search for clues.
SIDE B: For the advanced user contains a disassembler. All this for only **£10** on T.D.K. tape post free.

DISC CRACKER
Side A — Contains a sector editor, disc-assembler, disc check and mapping, disc repair.
Side B — Contains 48k disc copier, 128k disc copier, plus a true double density disc copier. Comes complete with full instruction manual on a double sided disc. **£20** post free.

All software and hardware sold subject to not infringing copyright. For free 15 page catalogue send SAE to:

STOCKSOFT
15 Woodbrooke Road, Birmingham B30 1UE

ATTENTION AMERICANA SOFTWARE OWNERS DID YOU KEEP THIS!

If you did then you're the lucky winner of a free Americana product of your choice. If you didn't or your Americana game wasn't one of the many that included this outstanding offer then go out now and buy one — there's a lot of them about.

For those lucky winners simply indicate the Americana game of your choice in the space below and send it to Americana Software and we'll forward your free game by return.

Americana Software,
Unit 10, Parkway
Industrial Centre,
Heneage Street,
Birmingham B7 4LY

LICENSED TO THRILL
AMERICANA
SOFTWARE

U.S. GOLD
All American Software

MILES BETTER SOFTWARE

221 Cannock Road, Chadsmoor, Cannock, Staffs WS11 2DD. Tel: (05435) 79099

US GOLD	Cass.	Disc
Beach Head		10.95
Blue Max	7.95	10.95
Blue Max 2001	7.95	10.95
Bounty Bob Strikes Back	7.95	
Bruce Lee	10.95	10.95
Nights of the Desert		10.95
Dropzone	7.95	10.95
F15 Strike Eagle	10.95	10.95
Goonies	7.95	10.95
Kennedy Approach	10.95	10.95
Nato Commander		10.95
Pole Position	7.95	10.95
Spy Hunter	7.95	10.95
Solo Flight	10.95	10.95
Strip Poker	7.95	10.95
Summer Games		10.95
Super Zaxxon	7.95	10.95
Tigers in the Snow		10.95
Up n Down	7.95	10.95
Zaxxon		10.95
Zorro	7.95	10.95
Alternate Reality		16.95
Tapper	7.95	10.95
Exodus		16.95
Arcade Classics	7.95	
Asylum		10.95
Crusade in Europe	10.95	16.95
Silent Service		10.95
Quest Probe		10.95

BIG FIVE	Rom
Bounty Bob Strikes Back	29.95

ENGLISH SOFTWARE	Cass.	Disc
Chop Suey	7.95	10.95
Colossus Chess	9.95	11.95
Electra Glide	7.95	10.95
Smash Hits 1	8.95	10.95
Smash Hits 2	8.95	10.95
Smash Hits 3	8.95	10.95
Smash Hits 4	8.95	10.95

ACTIVISION	Cass.	Disc
Ball Blazer	8.35	12.95
Koronis Rift		12.95
Eidolon		12.95
Rescue on Fractalus	8.95	12.95
Decathlon	8.95	
Cross Country Road Race	8.95	12.95
Hacker	8.95	12.95
Space Shuttle	8.95	
Designer Pencil (ROM)		9.95
Past Finder (ROM)		9.95
Pitfall II	8.95	

ARIOLASOFT	Cass.	Disc
Pinball Construction Set		11.95
Music Construction Set		11.95
Seven Cities of Gold		11.95
Realm of Impossibility		11.95
Home Pack		31.95
Cut 'n' Paste		22.95
Arcon II		10.95
Movie Maker		14.95
Paperclip		40.95
Racing Destruction Set		12.95

DIGITAL INTEGRATION	Cass.	Disc
Fighter Pilot	8.35	10.95

NOVAGEN	Cass.	Disc
Encounter	7.95	10.95
Mercenary	7.95	10.95

C.D.S.	Cass.	Disc
Steve Davis Snooker	8.95	10.95

SUBLOGIC	Cass.	Disc
Flight Simulator II		39.95

DATABYTE	Cass.	Disc
Boulderdash II	8.95	12.95
Spy V Spy II	8.95	12.95
Graphics Art Dept.		26.95
Beta Lyrae	8.95	12.95
Mister Robot	8.95	12.95

INFOCOM	Cass.	Disc
Hitchhikers Guide to the Galaxy		24.95
Seastalker		19.95
Deadline		19.95
Cutthroates		24.95
Wishbringer		28.95
Zork I		19.95
Zork II		29.95
Zork III		29.95
Planetfall		19.95
Starcross		29.95
Enchanter		34.95
Spellbreaker		24.95

AMERICANA	Cass.	Disc
Scooter	2.99	
New York City	2.99	
Shamus	2.99	
Ollies Follies	2.99	

RED RAT SOFTWARE	Cass.	Disc
Technicolour Dream		12.95

ST SOFTWARE

Batteries included	Disc
Degas	34.95

LLAMASOFT	Cass.	Disc
Colour Space		17.95

RAIN BIRD	Cass.	Disc
The Pawn		22.95

INFOCOM	Disc
Hitchhikers Guide to the Galaxy	24.95
Planetfall	19.95
Zork I	19.95
Spell Breaker	42.95
Deadline	19.95
Mind Forever Voyaging	34.95
Infidel	29.95
Cutthroates	29.95
Wishbringer	29.95

PSY GNOSIS	Disc
Brataccus	32.95

GST	Disc
GSTC Compiler	56.95
GST Macro Assembler	34.95

ANCO	Cass.	Disc
Knockout	8.95	11.95

ACTIVISION	Disc
Mind Shadow	22.95
Hacker	22.95
Borrowed Time	22.95
Music Studio	27.95

MICRODEAL	Disc
Time Bandits	22.95

Addictive Games	Cass.	Disc
Football Manager	8.95	

Special offer
Ballblazer c8.95
Including £1 voucher off next purchase.

HARDWARE

354 3½" 500k Disc Drive for ST **£145.00**
XCII Cassette Unit **£34.00**
Atari 520STM **£395.00**

All prices are correct at time of going to press.
Access or Visa orders welcome.
Please make Cheques or Postal Orders payable to:

"MILES BETTER SOFTWARE"

Phone or write for comprehensive stock list for Atari and ST software + hardware.

Access

BARCLAYCARD VISA

Get switched on!

Part 2 of LEN GOLDING's series on controlling gadgets via your Atari

LET'S look at how to get useful signals out of the joystick ports and how to amplify them so that they can switch external appliances on and off under software control.

With the power switch described you can make animated models, control a train set, drive low-voltage disco lights or operate equipment designed for use in car, caravan or boat.

The switching action can be controlled directly by your software, manually from the keyboard or by an external sensor such as the light-activated switch described last month.

First let's look in detail at setting up the joystick ports. Each one has four signal lines – pins 1 to 4 – which can be made to behave as outputs by Program I.

Line 10 notifies the computer that you are about to change the way ports 1 and 2 are handled, line 20 specifies that all eight signal lines are to be treated as outputs and line 30 sets 54018 back to its original value, with the new rules operational.

Line 40 clears the switch register, making sure all the signal lines are off. From then on, any number you poke into 54016 will appear as a pattern of high – on – and low – off – voltages on the output pins of ports 1 and 2.

Table I shows the numbers to poke for all possible on/off combinations at port 1. Each line has its own unique number – 1,2,4 or 8 – and by adding these numbers together in different combinations you can control each output independently.

Numbers higher than 15 will bring port 2 into operation. Pins 1, 2, 3 and 4 in this port are controlled by 16, 32, 64 and 128 respectively, as shown in Table II, and these numbers can be combined as before.

For example POKE 54016,195 – or 1+2+64+128 – will switch on pins 1 and 2 at port 1 together with pins 3 and 4 at port 2. Similarly POKE 54016,150 – or 2+4+16+128 – will switch on pins 2 and 3 at port 1 and pins 1 and 4 at port 2.

Any pin which is not specifically selected will automatically switch off when you poke a new number into 54016.

When a pin is on it carries 5V, and will supply 0.5mA. When it goes off the voltage drops to 0V, but it can pass 15mA in this state.

You can't do much with such tiny signals, and in any case it isn't wise to connect loads directly to the joystick port. But both of these problems can be overcome by using a transistor.

There are many different species of transistor, but for the moment we'll concentrate on the bipolar kind, which come in two varieties – PNP and NPN. Figure I shows the circuit symbols for both, together with the pin-outs for the two types we'll be using.

Both types have three leads – collector, base and emitter. In each case a small current flowing through the base will enable a much larger current to pass between collector and emitter.

The current can flow only one way – from positive to negative in the direction of the arrow – so it doesn't behave exactly like a switch, but the effect is similar.

A PNP transistor turns on when its base voltage is at least 0.6V lower than its emitter voltage, whereas the NPN variety needs the base to be at least 0.6V higher than its emitter.

Actually it's a lot more complicated than that, but we don't want to get into transistor theory at this stage.

Figure II shows how you can use an NPN transistor as a simple current amplifying switch. The load is a light-emitting diode – those small red

→

Number in 54016	Port 1 Pin 1	Pin 2	Pin 3	Pin 4
0	Off	Off	Off	Off
1	On	Off	Off	Off
2	Off	On	Off	Off
3	On	On	Off	Off
4	Off	Off	On	Off
5	On	Off	On	Off
6	Off	On	On	Off
7	On	On	On	Off
8	Off	Off	Off	On
9	On	Off	Off	On
10	Off	On	Off	On
11	On	On	Off	On
12	Off	Off	On	On
13	On	Off	On	On
14	Off	On	On	On
15	On	On	On	On

Table I: Output switching

```
10 POKE 54018,56:REM Set up Port Control
20 POKE 54016,255:REM All Pins as Outputs
30 POKE 54018,60:REM Re-set Port Control
40 POKE 54016,0:REM Switch all signal lines off
```

Program I

	Port 1				Port 2			
Pin number	1	2	3	4	1	2	3	4
Control number	1	2	4	8	16	32	64	128

Table II: Switch control numbers

lamps on your keyboard, cassette recorder and disc drive are LEDs – and its only purpose is to indicate on or off.

When pin 1 goes to 5V the transistor switches on, allowing current to flow through the LED. Nearly all the power comes from pin 7 – less than half a milliamp is required at pin 1 – and the transistor acts as a kind of buffer, protecting the signal line.

Because they are so small, transistors and LEDs can be very fiddly to wire together, especially if you're not too happy about soldering.

The easiest solution is to use a solderless breadboard, like the one in the photograph. Each hole contains a spring-loaded electrical contact which can grip a wire or a component lead.

The contacts are connected together in rows of five, and there are longer strips of interconnected sockets at the edges, for use as power supply lines. You simply plug components into the breadboard and take wire leads from the adjacent holes.

Screw the breadboard on to your plywood base, and wire everything together as in Figure III. Use single-conductor insulated wire – not the stranded type – as the bared ends will push into the breadboard holes more easily and you won't get broken strands coming off inside.

The LED won't work if it is fitted the wrong way round – the cathode is indicated by a flat on the LED body, and also by a shorter lead. Run Program I, then type:

```
POKE 54016,1
```

and the LED will light.

Atari's technical reference notes specify a maximum current drain of 50mA from the joystick ports, and you must not exceed this under any circumstances.

In fact, the internal power supply starts showing signs of distress at about 20mA, so it's best to keep at or below this level if possible.

Therefore to drive anything worthwhile you will need an external power source capable of delivering higher voltages and currents. A battery or a power supply unit will do, and 12V is sufficient for all the gadgets we'll be describing this time.

A BC108 transistor can't handle more than 100mA so an extra amplification stage is needed. The circuit in Figure IV shows how to add a second, much more powerful, transistor.

When TR1 switches on it supplies base current to TR2, which in turn handles all the power for the load.

If anything should go wrong with the battery circuit the two transistors prevent high voltages getting back to the joystick ports, so the risk is minimised.

The output of this switch is in

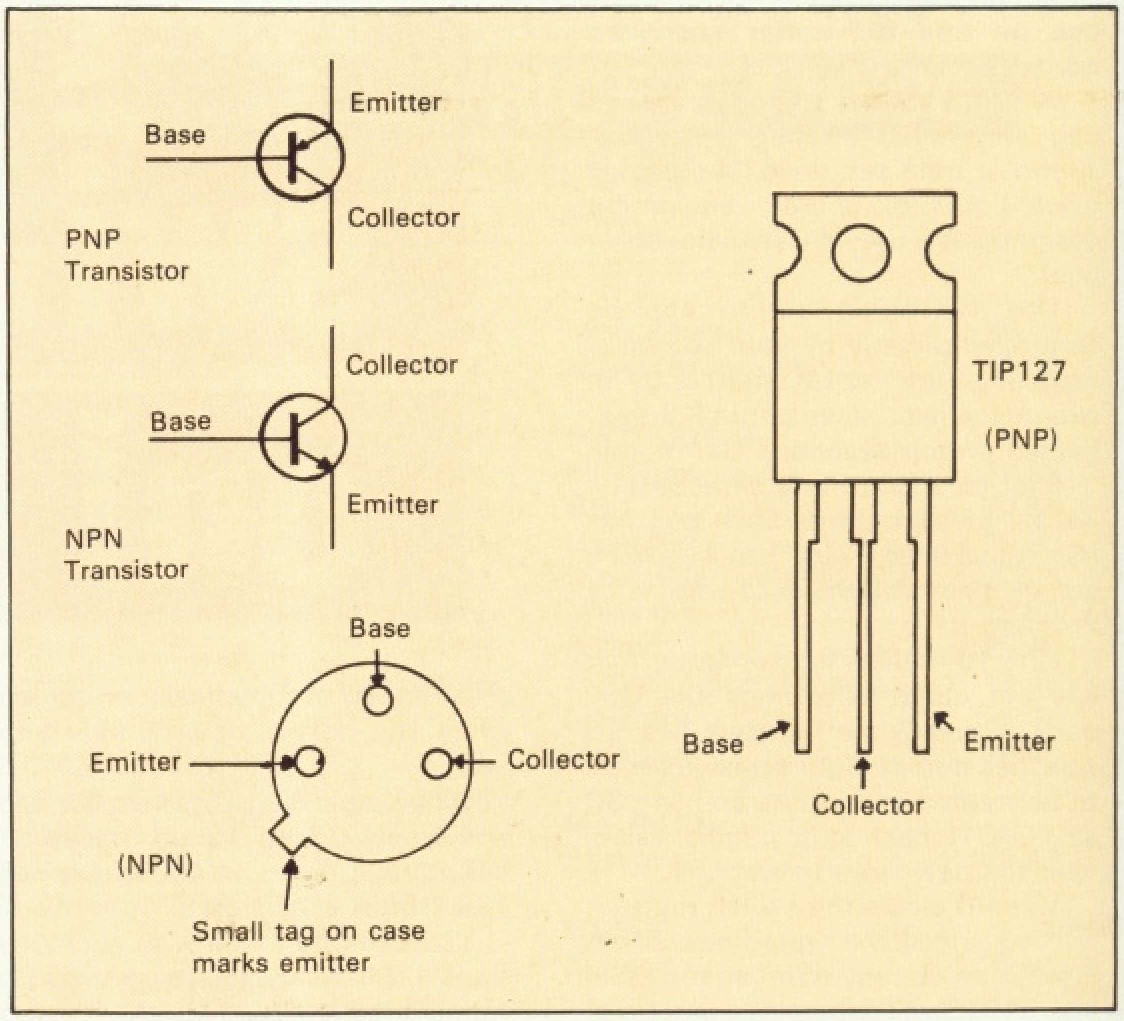


Figure I: Circuit symbols and pin-outs

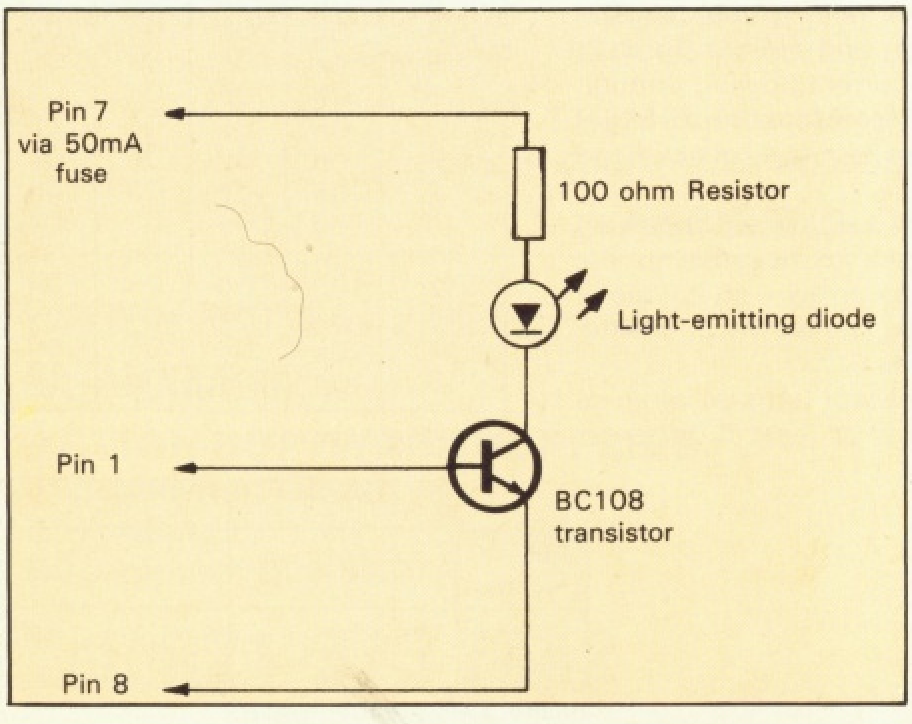


Figure II: Simple transistor switch

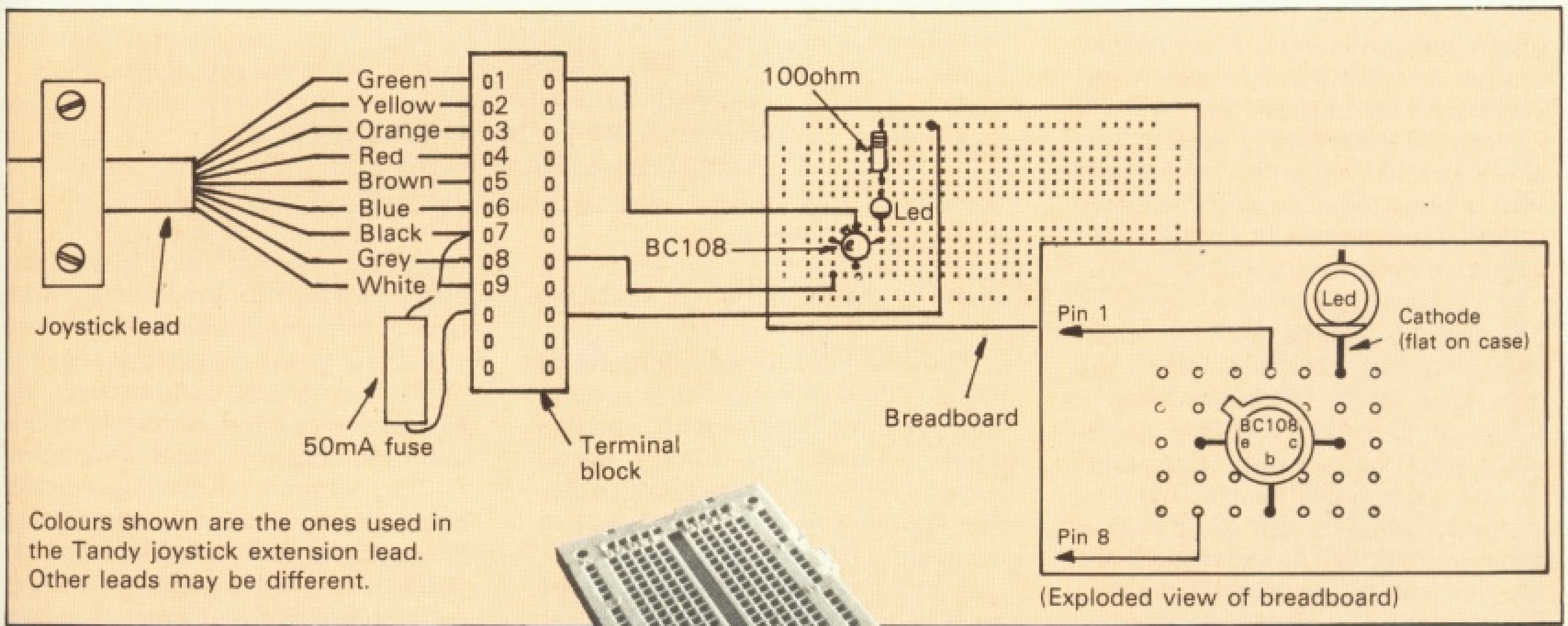
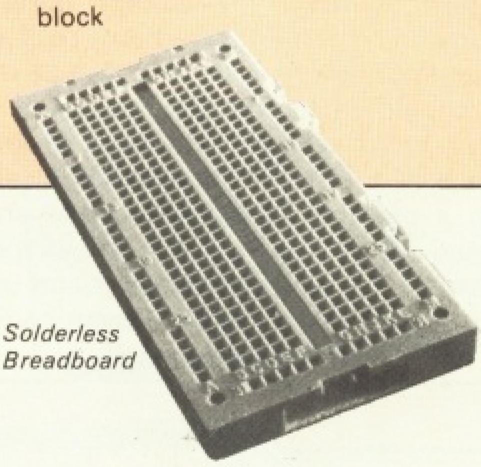


Figure III: Breadboard layout of simple switch



Solderless Breadboard

phase with the input – a positive voltage on the signal line produces a positive voltage at the collector of TR2.

If the load is an electromagnetic device – such as a relay, solenoid or motor – it will generate high voltage spikes on the power lines, which could damage the output transistor.

The diode D1 is used to suppress these, and it must be wired as shown with cathode to positive or it will self-destruct. The case has a black or coloured band to mark the cathode end.

Figure V shows how to wire everything up without soldering, using a miniature terminal block. The transistor leads are quite short, so you will need the smallest block you can find – not more than 8mm between terminals.

Be extremely careful when bending the leads of the TIP127. They have a flat cross-section and will break very easily if you try to bend them across their width, but a half-twist will help them round the corners.

The power transistor is rated at 5amps, but it gets very hot when controlling 1 amp or more, so some form of heat sink is necessary.

The twisted vane type is adequate for loads up to 2.5 amps (25 watts at 12V), but heavier loads require larger heat sinks – a 5°C per watt type will enable you to draw up to 5 amps.

You can buy one of these, or make your own from a piece of scrap aluminium – about 50 square centimeters of 3mm plate or angle should be adequate.

A touch of silicon grease will improve the thermal contact, but isn't strictly necessary so long as the surfaces are clean and the transistor is bolted down securely.

Because the first transistor places such a small load – about 1mA – on the joystick port you can have a power switch on every signal line, giving you eight independent channels.

Now we have something really useful. You could construct animated Lego or Meccano models, moving displays for shop windows or even simple robots.

You could control up to eight separate tracks – or points switches – on your model train set, and program the whole layout like the London Underground.

A safe disco display for children can be made from 21 watt car indicator bulbs. Or you might use 12V pumps or solenoid valves to constuct an automatic watering system for your conservatory.

Remember, though that the exter-

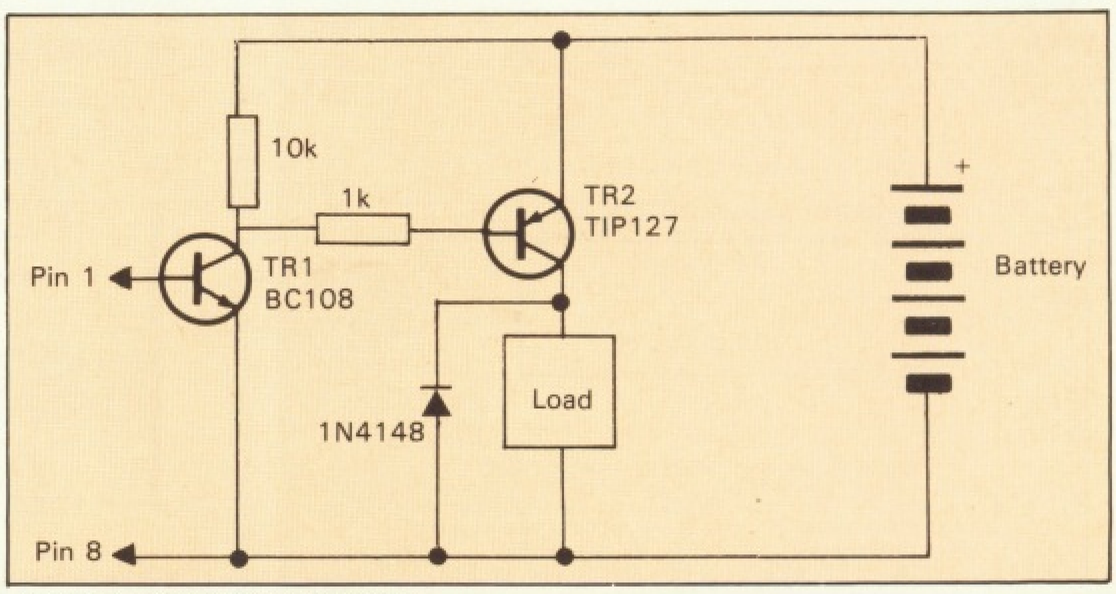


Figure IV: Low-voltage power switch

nal power source must be able to supply enough current. A car battery charger is worth trying, or you might use an old car battery itself.

Take the usual care to avoid sparks and excessive currents which could start a fire. Under no circumstances should you attempt to connect this circuit straight to the mains.

The power switches can be operated by external sensors rather than a fixed program. We'll be describing many different kinds – temperature, sound, humidity, movement and others – in a future issue.

For now you could try the cadmium sulphide cell we looked at last month. Wire it between pin 9 and the free end of the 50mA fuse, then use Program II to switch the load on when it's dark and off again when it's light.

Line 20 sets the switching threshold L, and you can reverse the action by changing the > at line 40 to <.

```
10 POKE 54018,56:POKE 54016,255
20 POKE 54018,60:POKE 54016,0
30 L=0:REM Threashold value
40 IF PEEK(624)>L THEN POKE 54016,1:GOTO 40
50 POKE 54016,0:GOTO 40
```

Program II

You could use this device to set an intruder deterrent system into operation at dusk. How about a gadget which switches low-voltage lamps and and off in random patterns to give the impression that your house is occupied while you are away?

A word now about buying all the necessary bits and pieces, which can be a problem, especially if you are relatively new to the game. It's all too easy to pay over the odds, or end up with the wrong thing since components which look alike may have totally different specifications.

For things like transistors, resistors and other small components the easiest and safest method is to use one of the big mail order companies.

They all produce catalogs – some better than others – containing photographs and specifications.

We've tended to quote order codes from Maplin Electronic Supplies because they are among the less expensive quality suppliers, and their catalog is readily available from W.H. Smiths. Other mail order companies

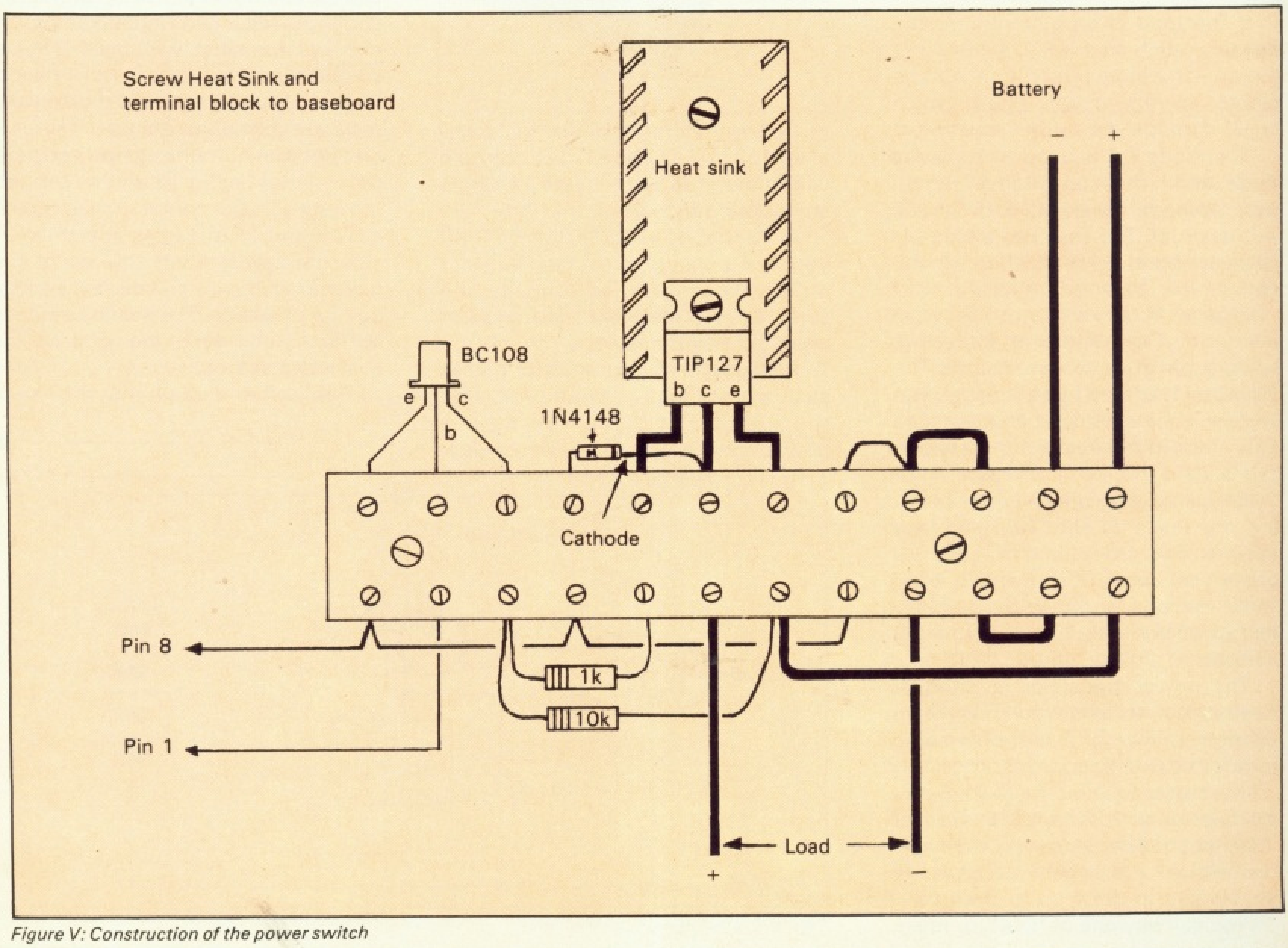


Figure V: Construction of the power switch

advertise regularly in the monthly electronics magazines.

Some High Street audio stores, such as Tandy, also supply a limited range of electronic components.

They are useful for certain unusual items like the joystick extension lead, or for things you need in a hurry, but you'll usually pay more for them and the shop assistant is unlikely to be very knowledgeable.

Try your local scrap yard for bargains in 12V electro-mechanical equipment, such as windscreen wiper motors, door-locking solenoids and headlamp relays.

Caravan, camping and boat shops can also supply a wide range of suitable gadgetry, and most electronics magazines advertise surplus and ex-equipment devices which are fine for low-voltage experimentation.

How about mains appliances? Transistors cannot handle the very high voltages and currents involved, so you can't use the circuit of Figure IV to switch on your electric blanket, control your central heating or turn the TV off when you've fallen asleep over the keyboard.

Besides which, you and your computer need much more protection from mains AC than from low-voltage DC circuits.

● *Next month we'll start talking about constructing an opto-coupled mains switch box, with two independent channels.* ■

PARTS LIST

1 battery, 6V to 12V, with clips to attach leads, 1 5mm (Red) light-emitting diode (Maplin WL27E; Tandy 276-041), 1 Vero-bloc solderless breadboard (Maplin YL11M), 1 BC178 transistor (Maplin QB32K), 1TIP127 transistor (Maplin WQ74R), 1 1N4148 diode (Maplin QL80B), 1 high-power twisted-vane heatsink (Maplin FG55K), 1 cadmium sulphide cell: ORP12 or similar (Maplin HB10L; Tandy 276-116), 1 joystick extension lead (Tandy 276-1978), 2 small terminal blocks (Radiospares 423-166 or similar), 1m single-conductor connecting wire, up to 0.6mm core diameter, 2m 5amp low-voltage flexible wire (car accessory shops).

0.25 watt carbon resistors [colour codes in brackets]: 1 100 ohm [brown/black/brown], 1 1k (1000 ohms) [brown/black/red], 1 10k (10,000 ohms) [brown/black/orange]



Lost for words in a far from friendly manor

LAST month I promised to have a look at the adventures of Jym Pearson, but before I do that a quick round up of adventure news.

At last, now courtesy of US Gold, come the Thing and the Human Torch in Questprobe III by Adventure International, alias Scott Adams. If my review copy has reached me in time then I shall be looking at that one next month.

The same applies to The Price of Magik from Level 9, the follow-up to Red Moon. The poster boasts even more improvements in the number of locations, independent characters and spells you can cast. Also it claims very few bugs. Brillig's glitch hunters keep even the best on their toes!

Bally-Hoo from Infocom sends you on a quest to save the daughter of a funfair owner from who-knows-what, and should be up to the normal superlative Infocom standard. That is another feature for next month's round up of new goodies.

Finally, I had a nice play with an ST the other day and thoroughly enjoyed Borrowed Time from Activision, a very good graphic adventure, where you play a private investigator in trouble with some villainous characters.

I enjoyed using the mouse to select words and objects – much easier than typing them in – but the advertised price, £49.95, seems a bit steep for a game.

Now on to a request from A.R. Morris about the games of the aforementioned Jym Pearson. Do I know of any others apart from Escape from Traam and Curse of Crowley Manor?

Of course I do. But first, for the uninitiated, a quick look at the two games he mentions.

Crowley Manor is my favourite Pearson offering, released by Adventure International a few years ago. In it you play a Scotland Yard detective travelling to a mysterious manor where all sorts of grim and gruesome discoveries are to be made.

As with all of the Otherventure series, the layout is very simple and highly irritating. Visible objects appear at the top, a location description in the middle (next to the title), followed by your inventory, and at the bottom of the screen a space for messages.

The vocabulary is extremely limited compared with today's games, which probably explains why it will fit into the 16k Atari 400. For instance, 'Get' is understood but 'Take' is not. All this might lead the player to believe that 'I don't understand' is on constant display in the message area.

Despite the seemingly simplistic vocabulary the games compensate by having some very obscure commands too. In Crowley Manor although *Climb cab* gets you into the cab, it will take *Get out* to do precisely that. One experienced adventurer I know spent several weeks trying to do just that without succeeding.

With the above proviso, the game has a good atmosphere considering the brief descriptions, and there is plenty to explore.

Exploration in these games is something else, however. I can forgive an adventure writer almost anything, but to write games with no directions displayed is downright painful.

The most tedious part of these games is the fact that you cannot just glance at the screen to see which way to go. Pure navigation should not be part of the mystery!

Escape from Traam is a game which I never really got into. The scenario, in which you have crash landed on a planet and have to escape, never gripped me enough to believe in it, and the limited vocabulary finished me off.

The game employs a technique used quite a lot in this series. After a few moves the ship crashes no matter what you do, and you are flung clear. Frankly, I wish I'd gone down with it.

In San Francisco 1906 the random event turns out to be an earthquake (historically accurate if nothing else). At the time you are locked in your hotel bedroom with a ransom demand, a wad of bills and a crowbar which is incapable of prizing open the

By Brillig

door or window of the room – yet is able to get you out of the rubble after the earthquake.

Quite what you are doing with a crowbar under your bed I have no idea. Within a few locations of the hotel I was caught in a second quake and the Grand Opera House disappeared. I lost interest at this point.

However I will mention one thing to annoy even the most patient of players. Given a visible object of a wad of bills, and bearing in mind restricted vocabularies I typed *Get wad* with no success, followed, equally unsuccessfully, by *Get bills.* You've guessed it! *Get wad of bills* was the required input. Hrmmph!

Saigon – The Final Days starts in a Viet Cong prison camp when a mortar blast throws you clear of the hut and you start the long trek home. The game features the worst bit of vocabulary in adventuring.

Having rolled a rancid log down the hill to bridge a stream the following commands do NOT get you across: *Go stream, Go bridge, Go log, Cross stream, Cross bridge, Cross log, Walk stream, Walk bridge, Walk log.*

In fact on returning to this game for this article I could not get across the stream at all. Not that I was really bothered as I only got stuck in the minefield two locations later the last time I played it.

Finally Lucifer's Realm, a quaint little tale about trying to prove to the devil that Hitler is raising an army to overthrow him. Perhaps I had just had too much when I loaded this one, but after meeting Adolf Eichmann and John Wilkes Booth in rapid succession both blocking my way I decided I really didn't care who was the boss in Hades as long as he stopped Jym Pearson from writing adventures.

There is another adventure, The Institute, from the pen of Mr Pearson. I haven't played it and I don't intend to. ■

Glitches of the Month:

It is wholly appropriate that this month's glitch, from R.C. Bassett of Tilbury, Essex should be from Escape from Traam.

After finding the nylon rope in the wreckage of your spacecraft (all spacecraft carry rope don't they!) you stand at the bottom of a cliff. You'll fall if you try to climb it unaided, but there is a stout bush at the top.

***Tie rope to bush* means you can then climb happily to the top of the cliff. But if you can tie the rope to the bush, why bother?**

An electro
your artis



All these pictures were created using Technicolour Dream





ONE of the reasons for choosing an Atari 8 bit computer is for its superb graphic capabilities when compared to other 8 bit home computers.

Among the recent crop of programs that explore the world of Atari graphics are Technicolour Dream from Red Rat Software and Databyte's Graphics Art Department, or GAD for short. Both programs allow you to paint pictures on the screen with a joystick. Technicolour Dream will also accept input from the Atari Touch Tablet.

The most impressive feature of Technicolour Dream is its vast range of colours. All 256 that make up the Atari palette can be displayed on the screen at the same time. There is also a choice of 128 filters, which are similar to lens filters on a camera. For example if a red filter is used all the colours on the screen are tinged with red.

Colours can also be mixed, plotting pixels of one colour next to pixels of another. Viewed close up this gives a patterned effect, but seen from a distance the colours appear to merge to form a mixed colour.

By using filters and colour mixes it is claimed by Red Rat Software that it is possible to create over eight million different shades for your Atari. I've certainly found colours that I never thought possible.

An effects option allows you to change colours already on the screen, altering such things as overall contrast or individual colour values. Pictures can be stored to and loaded from disc. Some demonstration pictures are included with the Technicolour Dream package and my review copy came with a disc containing further pictures created using Technicolour Dream, most of a high standard.

Technicolour Dream pictures have a "tapestry" look to them due to the fact that pixels are plotted every other row only, leaving a thin blank between. This is due, I suspect, to the way that the 256 colours are put on to the screen by a process that merges two graphic mode screens, one for luminence, the other for brightness.

To assist you when you are drawing there is a line command to plot lines between designated points. This is the only drawing command available. There are none of the usual options associated with drawing packages, such as circle or fill.

Technicolour Dream is not very user friendly. It took me a while to work out how to use some of the options – particularly in the effects section. This is not helped by the manual which says such things as: "These commands move the 4 bit data 1 bit to the left or right". I am told that the manual is due for revision so hopefully some of the commands will be made clearer.

At the time of writing Technicolour Dream is available on disc only at £12.95, but a cassette version at £9.95 will be out soon.

Graphics Art Department is a powerful and versatile graphics package that should provide just about every option the computer artist should ever need.

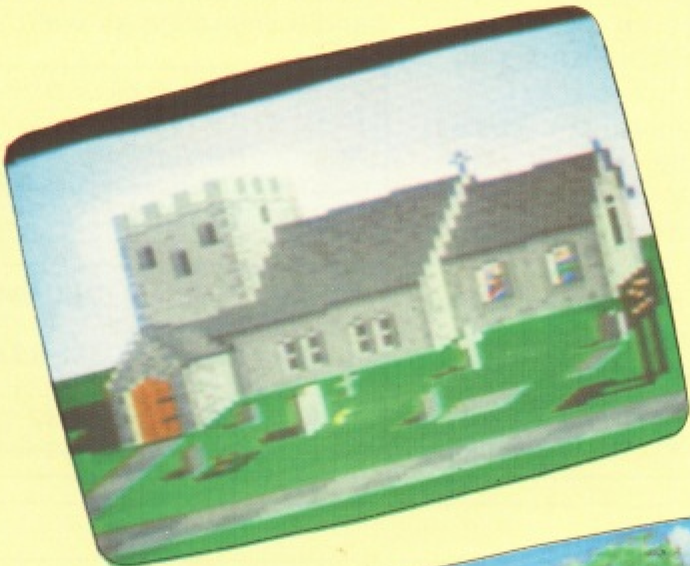
A good test for software of this type is to try it out on someone who is not used to using computers. I have been using GAD extensively for the last few days to design graphics for a game. Helping me were two artist friends who do not normally have anything to do with computers. They

ronic outlet for tistic expression

STEPHEN WILLIAMSON tries his hand at two painting programs for the Atari









found GAD a joy to work with and did not take long to master the techniques required to use it.

GAD has a multitude of commands but has a menu driven control system that makes operation easy. My friends especially appreciated the zoom option which allows selected areas to be magnified at one of three levels of magnification to make plotting or erasing individual pixels much easier.

Normally four colours are available selected from a 128 colour palette. To increase the number of colours display list interrupts can be instigated. After selecting an area for the display list interrupt to begin and choosing the new colour then the new shade will appear whenever a pixel is plotted below this point. This is not as versatile as the "256 colours anywhere" method employed in Technicolour Dream but for most practical purposes 128 colours are enough.

There are 40 different brushes to choose from, ranging from the very large for filling big areas of colour to brushes that draw parallel lines, and brushes for dabbing on small solid circles.

If the brush selection doesn't suit you an editor facility allows you to design your own. Any so designed can be saved to disc and loaded again at a later date.

GAD uses a Graphics 7 screen with a definition of 160 × 80 pixels, which means that the size of the smallest brush is one pixel. A Graphics 7 pixel is more or less square which makes it easier to calculate proportions and angles but does restrict picture definition when compared to say a Graphics 15 picture with its smaller, but thinner pixels.

There are commands to help in drawing geometric shapes such as circles, triangles and rectangles. They can be outlines or solid shapes filled with one colour or a pattern chosen from a pre-set selection. The patterns can also be used during the fill command and, like the brushes, can be edited and re-designed to your own specifications, then saved to disc if required.

Shapes are drawn using a rubber banding facility which lets you view, move or enlarge the shape before pressing the fire button to fix the image on the screen.

Areas can be inverted to create a negative image, rotated, mirrored or moved. My friends wanted to plant a forest in front of a mountain scene. To do this just one tree needed to be drawn. Then, using the block move facility, the image of the tree was moved to various points on the screen and repeatedly planted to form the forest.

Text can be printed on the screen at any point. A standard print font is included, and an edit mode enables custom designed letters to be produced and saved to disc if required.

Pictures can be scrolled in any direction. This helps centre a picture on the screen. I found it impossible to make a mistake on a picture that cannot be rectified in some manner. Undo is a marvellous option that restores a picture to its previous state before the last command. This is great for "unfilling" areas. The fill command on some graphic packages can be frustrating. If the area to be filled is not completely sealed the fill leaks out with disastrous consequen-

ces. Undo simply brings you back to the unfilled state before the mistake was made.

Pictures can be saved and loaded on disc and hard copy dumped to a printer. GAD is set up to be compatible with Epson, Gemini and Prowriter printers with the option to customise it to work with other makes. I tried to make GAD talk to my Atari 1029 printer but without success. Perhaps I entered the wrong printer control code data – or it could be that GAD just will not work with the Atari model.

Technicolour Dream's print option is designed to work with an Epson RX80 or compatible model. The poor Atari printer gets left out again.

Other GAD commands cover brush speed, rainbow colour rotation, ellipses, clear screen, jump to a point and kaleidoscope mode. There are many more.

Both GAD and Technicolour Dream pictures can be incorporated into your own programs. The Technicolour Dream manual provides a short Basic routine to load pictures, while GAD has a machine code routine that can be copied from the GAD disc as a DOS binary file and then accessed from Basic using a USR command. Both methods are straightforward and do not demand complex programming knowledge. GAD's machine code routine makes it possible to load GAD pictures to a machine code program without much trouble.

The Art Gallery section of GAD enables you to set up your own picture gallery of GAD pictures to show your friends.

Graphics Art Department costs £29.90 on disc only. This is over twice as much as Technicolour Dream, and at the top end of the Atari software market.

If you want to experiment with colour and draw pretty pictures, and also have a limited budget, Technicolour Dream is fine if you can accept its limitations. On the other hand if you want to do some serious graphic work and need a flexible graphics package then fork out the extra and buy GAD, it's well worth the money.

In an ideal world I'd love to see a graphic package that combines the best of Technicolour Dream and GAD – Technicolour Dream's vast colour palette and smaller pixels, but without the inbetween blank lines, together with GAD's versatility. In the meantime I'll get back to creating my GAD art masterpiece. If only it could handle animation as well . . . ■

Program: Technicolour Dream
Price: £12.95 (disc)
Supplier: Red Rat Software, 11 Fennel Street, Manchester M4 3DU. Tel: 061-835 1055

Program: Graphics Art Department
Price: £29.90 (disc)
Supplier: Databyte, Suite 31A Grove Terrace, Highgate Road, London NW5 1PL. Tel: 01-482 1755

Let Rambas lock out the lock-up

By ROBERT GEAR

MUCH has been said over the past couple of years about the bugs in Atari Basic Revision B. I present here Rambas, a short machine language routine which will cure the most serious flaw – the infamous lock-up which can occur when entering programs.

Many remedies have been suggested to alleviate this problem. Many are time consuming, most are inconvenient, and none are the stuff which makes for happy computing.

What is required as the definitive solution is a new and bug-free Basic interpreter. Short of paying out extra money for Revision C Basic from Atari, or Basic XL from OSS, the problem would seem to be irresolvable.

Not any more! You too can be free of the lock-up problem for good. If you have a disc drive you can save the routine as an AUTORUN.SYS file and never even see the change. Alternatively, for cassette users, the routine can be modified and saved as a Basic loader program.

The Basic interpreter is contained in rom. In the XL range this rom covers an area of free random access memory. When the computer is first switched on it is normally the Basic rom which is enabled; the ram area is merely a shadow and is rarely used.

If the Option button is held down during power-up then the operating system will disable the rom and allow access to the ram.

A machine language routine can easily move the entire contents of the Basic rom down in memory, enable the shadow ram which lies under the Basic interpreter, and move Basic back up to occupy its former position. Once this has been done it is possible to alter the Basic interpreter and put right some of its faults.

It is well known that the lock-up problem is caused by a fault in the EXPAND routine which is designed to move the Basic program tables down in memory very quickly. This was changed from its Revision A counterpart in a mistaken attempt to put right another bug. Actually it was the CONTRACT routine which as at fault. That bug was corrected in revision B but EXPAND was fine as it was and should have been left alone.

If the disassembly of the Basic rom in an XL machine is compared with the EXPAND routine in The Atari Basic source book from Compute! Books, it is easy to see that the EXPAND routine differs significantly by only four bytes. If the EXPAND routine is amended to act as it originally did, the lock-up problem will be solved.

Listing I gives the entire Rambas routine in assembler. Included in the listing is code to stop the computer from rebooting every time the Reset button is pressed, and thus re-enabling the rom-based Basic.

When the Atari does a warmstart – that is, when the Reset button is pressed – the operating system looks at locations $9 (BOOT?) and $244 (COLDST). COLDST usually reads zero, but if the value in COLDST is one then the operating system thinks a powerup is in progress and will reboot the cassette or disc. (Incidentally, this is a good way of protecting your programs from prying eyes). Rambas sets COLDST to zero to stop the system from rebooting.

The operating system looks at the BOOT? register to find out if either the cassette or disc was booted successfully:

BOOT? value	*Meaning*
00	No peripherals booted
01	Disc boot successful
02	Cassette boot successful

The operating system's action after Reset depends on which peripherals were booted, if any. If a cassette boot was successful the operating system will jump to the address held in CASINI (the cassette initialisation vector, locations $2 and $3).

If a disc boot was successful the jump will be to the address held in DOSINI (the disc initialisation vector, locations $C and $D).

By intercepting the disc initialisation vector and making it point to the RESTART code, the ram-based Basic is made permanent even if Reset is pressed. The RESTART routine re-enables the shadow ram and jumps to where the disc initialisation vector originally pointed, in order to pass control back to Basic.

Cassette users must fool the operating system into thinking that a peripheral was booted by setting BOOT? to one. At the end of the RESTART routine control is passed back to Basic by jumping directly to the Basic warmstart routine.

Disc users have two different ways of implementing Rambas.

If you have an assembler you can type in the assembly listing from Listing I and assemble the routine into ram. Alternatively you can type in and run Listing II, which is a Basic loader program containing Rambas as data statements. Either way you should go to DOS in order to save the routine as an autorun file.

To do this, type DOS and use option K (binary save). In response to the prompt, give the following save parameters:

AUTORUN.SYS,600,678,,600
[Return]

The routine will then be saved as

```
10         *= $600         ;Locate at page six
20 ;
30 ;  *****************************
40 ;  *  Move Basic down to free   *
50 ;  *    RAM a page at a time    *
60 ;  *****************************
70          LDX #$20        ;32 pages to be moved
80 PAGEDOWN  LDY #$0         ;Byte count=0
90 DPNTR1    LDA $A000,Y     ;Move one byte to free RAM
0100 DPNTR2  STA $3800,Y
0110         INY             ;Point to next byte
0120         BNE DPNTR1      ;If page not done, go back for next byte
0130         INC DPNTR1+2    ;Increment the page pointers
0140         INC DPNTR2+2    ;to point to next page
0150         DEX             ;Decrement page count
0160         BNE PAGEDOWN    ;Branch to move next page until all done
0170 ;
0180 ;*****************************
0190 ;*   Enable the shadow RAM    *
0200 ;*****************************
0210         LDA $D301
0220         ORA #$02        ;Set bit 1 of memory control register
0230         STA $D301
0240 ;
0250 ;*****************************
0260 ;* Move Basic back up to it's *
0270 ;*    original position       *
0280 ;*****************************
0290         LDX #$20        ;32 pages to move
0300 PAGEUP  LDY #$0         ;Byte count=0
0310 UPNTR1  LDA $3800,Y     ;Move one byte back up from free RAM
0320 UPNTR2  STA $A000,Y
0330         INY             ;Point to next byte
0340         BNE UPNTR1      ;If page not done go back for next byte
0350         INC UPNTR1+2    ;Increment the page pointers
0360         INC UPNTR2+2    ;to point to next-page
0370         DEX             ;Decrement page count
0380         BNE PAGEUP      ;Branch to move next page until all done
0390 ;
0400 ;*****************************
0410 ;* Amend BASIC Expand routine *
0420 ;*****************************
0430         LDA #$F0
0440         STA $ABDF
0450         LDA #$12
0460         STA $ABE0
0470         LDA #$EA
0480         STA $ABE1
0490         STA $ABE2
0500 ;
0510 ;******************************
0520 ;*  Revector DOSINI to make    *
0530 ;*    the RAM based Basic      *
0540 ;*        reset-proof          *
0550 ;******************************
0560 ;
0570 ;******************************
0580 ;*      Lines 610-640 for      *
0590 ;*       DOS users only        *
0600 ;******************************
0610         LDA $0C          ;Set restart address of RAM Basic
0620         STA RAMBASIC+1   ;to point to DOS initialisation routine
0630         LDA $0D
0640         STA RAMBASIC+2
0650 ;******************************
0660 ;******************************
0670         LDA #RESTART&255 ;set DOS initialisation vector
0680         STA $0C           ;to point to RAM basic restart
0690         LDA #RESTART/255
0700         STA $0D
0710         LDA #$0          ;Set COLDST
0720         STA $244
0730         LDA #$1          ;and BOOT? to prevent reboot every
0740         STA $9           ;time the RESET button is pressed
0750 ;
0760 ;******************************
0770 ;***   RESTART BASIC       ***
0780 ;******************************
0790         JMP $A000        ;Do Basic coldstart
0800 ;
0810 ;******************************
0820 ;* Re-enable the RAM resident  *
0830 ;*     Basic after RESET       *
0840 ;******************************
0850 ;
0860 RESTART  LDA $D301       ;Re-enable the shadow RAM
0870          ORA #$2         ;by setting bit 1
0880          STA $D301
0890          LDA #$0         ;Amend COLDST
0900          STA $244
0910          LDA #$1         ;Amend BOOT?
0920          STA $9
0930 RAMBASIC JMP $AB4D       ;Defult Restart address for
0940 ;                         Basic (restart address will
0950 ;                         be altered automatically
0960 ;                         for DOS users).
0970          .END
```

Listing I

an autorun file and the start address will be specified as $0600.

Whenever you boot the disc with this file present the transfer routine will be automatically loaded and run and the amendment to Basic will be quite invisible to the user.

The Rambas transfer routine can be made to work on cassette-based systems with only a small modification.

If you are a cassette user type in the Basic loader in Listing II with line 10100 modified as directed in the listing. Don't forget to save the program to cassette using CSAVE *before* you test it. An error in the data will probably cause the machine to freeze and you will have to switch off and power up again to regain control.

The program should be loaded using CLOAD, and run immediately after power-up. There will be a short pause and the familiar READY message will appear.

Since Basic has been restarted with a coldstart, all traces of the loader program will be gone and it will be unnecessary to give the NEW command to clear the memory before proceeding. You should now have no more problems with lock-ups.

Correcting bugs is not the only use for a ram-based Basic such as I have described. If you study the Basic dissassemby you will probably see many ways in which Basic can be

altered or improved. I hope these suggestions will give the interested reader some food for thought:

- Altering the error handling routines to give meaningful error messages instead of error numbers.
- Rewriting the program editor to give greater freedom of movement around the stored program.
- Adding extra commands to the interpreter, for example commands for handling player/missile graphics. ■

```
10 REM RAMBAS, By Robert W. Gear
20 REM ATARI USER, JULY 1986
30 REM
40 REM ******************************
       *                            *
50 REM * CASSETTE USERS,  PLEASE    *
       * TYPE LINE 10100 AS FOLLOWS *
       *                            *
60 REM * 10100 DATA 234,234,234,    *
       *          234,234,234,234,  *
       *          234,234,234       *
70 REM *                            *
       ******************************
90 REM
100 RESTORE
110 ADDRESS=1536
120 READ DATA
130 IF DATA=-1 THEN A=USR(1536)
140 POKE ADDRESS,DATA
150 ADDRESS=ADDRESS+1
160 GOTO 120
10010 DATA 162,32,160,0,185,0,160,153
10020 DATA 0,56,200,208,247,238,6,6
10030 DATA 238,9,6,202,208,236,173,1
10040 DATA 211,9,2,141,1,211,162,32
10050 DATA 160,0,185,0,56,153,0,160
10060 DATA 200,208,247,238,36,6,238,39
10070 DATA 6,202,208,236,169,240,141,2
23
10080 DATA 168,169,18,141,224,168,169,
234
10090 DATA 141,225,168,141,226,168
10100 DATA 165,12,141,118,6,165,13,141
,119,6
10110 DATA 169,100,133,12,169,6,133,13
10120 DATA 169,0,141,68,2,169,1,133
10130 DATA 9,76,0,160,173,1,211,9
10140 DATA 2,141,1,211,169,0,141,68
10150 DATA 2,169,1,133,9,76,77,160
10160 DATA -1
```

Listing II

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	6920	20	5041	30	871
40	8273	50	16191	60	13864
70	8263	90	871	100	1733
110	2338	120	2027	130	4867
140	3550	150	3558	160	1614
10010	4769	10020	4707	10030	4754
10040	4589	10050	4718	10060	5027
10070	5461	10080	5528	10090	4495
10100	5939	10110	5000	10120	4741
10130	4315	10140	4687	10150	4486
10160	1293				



Tired of typing?

Take advantage of our finger-saving offer on Page 69.

MicroLink



What it offers the Atari user . . .

Electronic mail is much cheaper than the post

Sending mailbox messages to other subscribers, whose numbers are rapidly growing, is the cheapest form of communication possible. You can send a message of any length to another mailbox for less than the cost of a first-class stamp. And it doesn't cost a penny more to send the same message to 500 different mailboxes! Even a message sent to a mailbox on the other side of the world only costs 30p.

The biggest bulletin board of them all

The number of bulletin boards is growing rapidly. The only snag is that the vast majority are single-user boards – which means lots of other people are also trying to make contact and all too often all you get is the engaged tone. But with the MicroLink bulletin board there is no limit to the number of people using it at the same time. And no limit to the number of categories that can be displayed on the board.

Give your micro mainframe power

With MicroLink your micro becomes a terminal linked directly to the Telecom Gold mainframe computer, and able to tap its tremendous power and versatility. Right away you'll be able to use giant number-crunching programs that can only run on a mainframe.

The mailbox that is always open

MicroLink is in operation 24 hours a day, every day. That means you can access your mailbox whenever you want, and from wherever you are . . . home, office, airport – even a hotel bedroom or golf club! No-one needs to know where you are when you send your message.

We're only a local phone call away

The majority of MicroLink subscribers can connect to our mainframe computer in London by making a local phone call. This is possible because they use British Telecom's PSS system, which has access points all over Britain. A local phone call is all you need, too, for direct access via MicroLink to all the other countries belonging to the international Dialcom system.

Telemessages – at a third off

The modern equivalent of the telegram is the telemessage. Send it before 10pm and delivery is guaranteed by first post the following day (except Sunday). The service was intended for people phoning their message to the operator, which costs £3.50 for 50 words. But you can now use it via MicroLink, for only £1.25 for up to 350 words! For an extra 65p your message can be delivered in an attractive greetings card.

Go teleshopping on your micro

With MicroLink you can study the British Rail timetable – and then buy your ticket in advance. You can book theatre tickets. And even order a bouquet of flowers. It's all part of the tele-shopping revolution!

Send and receive telex messages

With MicroLink you can turn your micro into a telex machine, and can send and receive telex messages of any length. You will be able to communicate directly to 96,000 telex subscribers in the UK, 1½ million worldwide – and even with ships at sea via the telex satellite network. Business people can now send and receive telexes after office hours, from home or when travelling.

What does it all cost?

Considering all the services you have on tap, MicroLink is remarkably inexpensive. You pay a once-only registration fee of £5, and then a standing charge of just £3 a month. On-line costs are 3.5p a minute (between 7pm and 8am) or 11p a minute during office hours. There is an additional 2.5p a minute PSS charge if you are calling from outside the 01- London call area. Charges for telex, telemessages and storage of files are given on the next page.

How much it costs to use MicroLink

Initial registration fee: £5.

Standing charge: £3 per calendar month or part.

Connect charge: 3.5p per minute or part – cheap rate; 11p per minute or part – standard rate.
Applicable for duration of connection to the Service. Minimum charge: 1 minute.
Cheap rate is from 7pm to 8am, Monday to Friday, all day Saturday and Sunday and public holidays; Standard rate is from 8am to 7pm, Monday to Friday, excluding public holidays.

Filing charge: 20p per unit of 2,048 characters per month.
Applicable for storage of information, such as telex, short codes and mail files. The number of units used is an average calculated by reference to a daily sample.

Information Databases: Various charges.
Any charges that may be applicable are shown to you before you obtain access to the database.

MicroLink PSS service: 2.5p per minute or part (300 baud); 3p per minute or part (1200/75 baud).
Only applies to users outside the 01-London call area.

Telex registration: £10.

Outgoing telex: 5.5p per 100 characters (UK); 11p per 100 (Europe); 18p per 100 (N. America); £1.25 per 400 (Rest of world); £2.75 per 400 (Ships at sea).
Deferred messages sent on the night service are subject to a 10 per cent discount.

Incoming telex: 50p for each correctly addressed telex delivered to your mailbox. Obtaining a mailbox reference from the sender incurs a further charge of 50p.
It is not possible to deliver a telex without a mailbox reference. If a telex is received without a mailbox reference the sender will be advised of non-delivery and asked to provide a mailbox address.
Each user validated for telex and using the facility will incur a charge of 6 storage units a month. Further storage charges could be incurred depending on the amount of telex storage and the use made of short code and message file facilities.

Telemessages: £1.25 for up to 350 words.
Telemessages can be sent with an illustrated greetings card for 65p extra.

Radiopaging: No charge.
If you have a BT Radiopager you can be paged automatically whenever a message is waiting in your mailbox.

International Mail: For the first 2,048 characters – 20p to Germany and Denmark; 30p to USA, Australia, Canada, Singapore, Hong Kong and Israel. For additional 1,024 characters – 10p; 15p.
These charges relate to the transmission of information by the Dialcom service to other Dialcom services outside the UK and the Isle of Man. Multiple copies to addresses on the same system host incur only one transmission charge.

Billing and Payment: All charges quoted are exclusive of VAT. Currently all bills are rendered monthly.

Software over the telephone

MicroLink is setting up a central store of software programs which you'll be able to download directly into your micro. The range will include games, utilities, educational and business programs, and will cover all the most popular makes of micros.

Talk to the world – by satellite

MicroLink is part of the international Dialcom network. In the USA, Australia and a growing number of other countries there are many thousands of users with electronic mailboxes just like yours. You can contact them just as easily as you do users in Britain – the only difference is that the messages from your keyboard go speeding around the world via satellite.

What you need to access MicroLink

You must have three things in order to use MicroLink: a computer (it can be any make of micro, hand-held device or even an electronic typewriter provided it has communications facilities), a modem (it can be a simple Prestel type using 1200/75 baud, or a more sophisticated one operating at 300/300 or 1200/1200 baud), and appropriate communications software.

MicroLink

in association with

TELECOM GOLD *

Application Form

AT 7

I/We hereby apply to join MicroLink

(✓) ☐ I enclose my cheque for £5 payable to Database Publications as registration fee to MicroLink.

(✓) ☐ I also wish to use Telex. I authorise you to charge an additional £10 to my initial bill for validation.

☐ I confirm that I am over 18 years of age.

✓ ☐ I confirm that I accept the terms and conditions for the time being in force, a copy of which are available on request.

Signature ______________________

Date ______________________

FOR OFFICE USE ONLY:

Mailbox assigned ______________________

Start date ______________________

Password ______________________

SEND TO:
MicroLink
Database Publications
Europa House
68 Chester Road
Hazel Grove
Stockport SK7 5NY.

* *Telecom Gold is a trademark of British Telecommunications plc.*

Name

Position

Company

Address

Postcode

Daytime telephone

Commencement of Service
Please indicate month of commencement
Allow 10 days for validation of mailbox

☐☐ 19 ☐☐

Payment
Whilst Database Publications Ltd is the supplier of all the services to you, the commission and billing thereof will be handled by Telecom Gold as agents for Database Publications Ltd.
Date of first payment to be on 15th of month following commencement.
Please complete billing authorisation form A, B or C below:

A. Direct Debiting Mandate *(Enter full postal address of Bank Branch)*

To

I/We authorise you until further notice in writing to charge to my/our account with you on or immediately after 15th day of each month unspecified amounts which may be debited thereto at the instance of British Telecommunications plc – TELECOM GOLD by Direct Debit. Bills are issued 10 days before debit is processed.

Name of Account to be debited

Account Number

B. Please debit my/our Access/Visa/*American Express account number
* *Overseas subscribers only*

I/We authorise you until further notice in writing to charge to my/our account with you on or immediately after 15th day of each month unspecified amounts which may be debited thereto at the instance of British Telecommunications plc – TELECOM GOLD. Bills are issued 10 days before charge is applied to your account.

Signature ______________________ Date ______________

C. Please invoice the company/authority.

(✓) ☐ If you select this option, which is ONLY AVAILABLE to government establishments and Public Limited Companies, you will be sent an authorisation form for completion which will require an official order number to accept unspecified amounts.

CHECK YOUR MICRO – REV C IS AROUND

WITH reference to M.A. Phillip's letter in the April issue of Atari User *I can confirm that 800XLs with Rev C Basic in them are available in the UK – I have one.*

I bought a Disk Drive 800XL package in Dixons recently and was having problems with the keyboard locking up after a lot of typing.

I wrongly assumed this was my fault until I read about the bugs in your March issue. I peeked location 43234 and found I had Rev B Basic.

However, what really annoyed me was that a colleague at work had bought a similar package a few days later at a lower price and got Rev C Basic.

I returned my package to Dixons, and after showing the manager the magazine article got a full refund. I subsequently got a new package from Currys with Rev C Basic.

The moral is before buying an 800XL package check that you get 234 and not 96. – **Gareth Foster, Whitton, Middlesex.**

Mine's a 234 too!

WITH reference to your comment after M.A. Phillips' letter in the April Mailbag. I have a bundled 800XL Pack, and on reading about the bug at 43234 I checked the address to find the contents were given as 234. – **M. Smith, Dartford, Kent.**

● Thanks for letting us know. If you have recently got an 800XL and you don't get an answer of 234 if you PRINT PEEK(43234) then you probably have an older machine.

Take it back to your dealer and ask him to provide you with the up-to-date version, as the Revision B machines have some bugs in them.

Our thanks to everyone who wrote in to us telling us about their own Revision C 800XLs, including James Kelly, Mr A. Boardman, Ejber Ozkan, Mrs S. Woodward, P. Stallard, Alan Norman, T.H. Ralphs, David Freath, Julian Madison, P. Abbot and many others too numerous to mention. You can stop writing now . . . please.

Screwdriver solution

REGARDING F. Ward's letter about the £20 play button on the 1010 recorder I have had this happen twice, the first time just five days after the guarantee ran out.

I duly took my recorder along to Silica Shop who quoted, yes you guessed it, £20 for the replacement. Having no alternative I handed over my crisp £20 note and my 1010 became operable once more.

After about another 12 months it happened again, this time before parting with the readies I questioned one of the salesmen. After torture he broke down and confessed that it was possible to fix the recorder by myself.

So having gained some electronics experience I decided to have a go. I went back to questioning the salesman who by now was a quivering wreck.

I asked the price of a new button, half expecting the price to be in double figures, but was flabbergasted when he told me £1.12. After picking my chin up off the floor, I found out how it was fitted.

Firstly unscrew the four base screws and separate the top from the bottom. Then locate the buttons inside – not hard. Remove the locking circlip on the rod around which the buttons pivot, then push the rod through the bracket and pull out the rod and buttons.

Slide off the buttons and replace the broken key with your new one. Replace rod into the chassis, replace the locking circlip and finally place the two halves together and do up the four screws.

Easy – honest it took me about a quarter of an hour.

I don't recommend this to be done when the recorder is still under guarantee but for those people handy with a screwdriver, whose units have expired, it's a great money saver.

Silica have admitted these buttons are notoriously weak. So come on Atari, £20 for a lump of plastic is just not on!

I hope my letter helps people and saves them a lot of unnecessary expenditure. – **Ian Sibthorpe, Bexley Heath, Kent.**

Key pinned

IN the March issue I was surprised to read about the £20 button by F. Ward.

The same thing happened to me when I pressed the Play key on my recorder – it just snapped. I opened my recorder up to see what damage I had done, only to see the key in two halves.

I thought on it for a while and decided to replace the broken Play key with the Pause key.

This was not too difficult-just a matter of removing the metal cassette mechanism from the top half of the unit and removing a small circlip washer from the key rail.

It was then simple to switch the key positions and thus give me time to think of some way to mend the broken key. I tried glue, but after setting for two days the key fell apart under use.

I then thought of drilling a small hole – using the smallest drill I could find – up the centre of the two halves, and pushing a panel pin into them. I put a spot of glue on them before bringing the two bits togther, just to make sure.

The result was a stronger key that before, and a simple wire nail saved me up to £20 into the bargin. – **Barry Nelson, Lisburn, County Antrin.**

● Two good ideas, but don't forget that doing these repairs yourself will void the manufacturers guarantee. So if it is within 12 months of purchase, take it back to your dealer.

Graphics artists

THANKS for printing three of my screens in the article on ST graphics in your May issue.

The quality of the screen shots was quite good, but I was a little disappointed to see that there was no credit for us hard working artists!

I have often admired published graphics in Atari User *only to be left wondering who they were.* – **Mo Warden, Bloxwich, Walsall.**

● Ah yes . . . sorry about that Mo. We did mean to credit you – honest.

To set the record straight the Degas and NeoChrome pictures used in the May issue were by Kev Bulmer himself – bottom four pictures on pages 10 and 11, Mo Warden – third picture on page 11 and both pictures on page 13, J. Powell – Thumper, Page 12, and Tom Hudson – M-TV robots, Page 12.

In the June issue the pictures on pages 12 and 13 were by Tom Hudson, with the exception of the Computer Aided Documentation which was by Kev Bulmer. The ST cover showed some of the stages involved in creating Kev's Android masterpiece.

If anyone has come up with

other graphic wonders on their ST or 8-bit, drop us a disc of them, and we may publish a few in a future issue.

ATARI USER Mailbag

WE welcome letters from readers – about your experiences using the Atari micros, about tips you would like to pass on to other users . . . and about what you would like to see in future issues.

The address to write to is:

Mailbag Editor
Atari User
Europa House
68 Chester Road
Hazel Grove
Stockport SK7 5NY

Graphics modes

I HAVE just got an 800XL and find some of the Basic easy to understand, but I do not understand the graphics at all.

On our school computers, all you have to do is use the word GRAPH, but on the Atari you use GRAPHICS followed by a number.

I do not understand this. Every time I attempt graphics, I get an error message. I feel this is a vital part of programming, so could you please help me. – **Martin Harris, Hertfordshire.**

● The reason that the Atari requires a number after GRAPHICS is to tell it which graphics mode to use – there are 15 basic modes, plus some others.

Atari graphics are much more powerful than those on most computers, and there's not enough space in an entire issue to cover them in full.

We did run a complete series on using graphics in our first eight issues – May to December 1985 – which should answer all of your immediate questions.

Looking for Yohan

I AM writing to you about Bounty Bob. After getting through Bob's calisthenics, his playroom Yukon's Revenge, even Acid Rain, where is Yukon Yohan?

After completing the final level there was still no sign of him. We changed him from a smoker to a gum chewer and did it again, still no sign.

The game in every respect is brilliant probably the best I have ever played on my 800XL or anywhere else.

Finally if you know of an Atari user group in the Birmingham area, we would be grateful. – **Robert and Karen Eventine, Birmingham.**

● Sorry, cannot help you with Yukon Yohan. Perhaps a reader can oblige.

The Birmingham Atari User Group meets on the first, third and fourth Thursday of each month at the Royal George opposite St Martin's Church, Bull Ring, Birmingham.

Bugs detected

HERE are some bugs I have found in a couple of games. In Tapper, when you have lost your last life press the fire button three or four times to continue at the same level and score. After you lose this life you will receive eight more.

Castle Wolfenstein, when you have lost a life – not been blown up – press the one key twice as the game screen turns blue and the drive is running. Try this and see what happens – the result is very useful. – **Brian DaBinett, Brackley.**

Where did the colour go?

I HAVE just got an Atari 130XE with a 1010 program recorder.

I was very pleased with the computer, until I tried it on a colour TV. I loaded a cassette game into the computer, but could not get any colour on the screen.

I wondered whether it was just the game at first, so I tried the Basic colour command but still got none.

Should I get my computer repaired, or is this a problem I could solve myself? – **Jason Dyke, Gravesend, Kent.**

● If you can't solve the fault by returning your TV set and adjusting the colour controls your best bet would be to take the computer back to your dealer and get it replaced. There is nothing you can easily do yourself.

Spelling mistake

WHENEVER I type a setcolour command, such as SETCOLOUR 2,0,0 I get this:

```
ERROR-   SETCOLOUR 2,0,0
```

Please can you sort out this problem.

Also whenever I load some games with Start and Option, I sometimes get a BOOT ERROR, BOOT ERROR message and then the computer puts itself into SELF-TEST mode. What's happening? – **Mark Kaye, Sherwood, Nottingham.**

● You haven't looked carefully at your manuals, have you? The command is spelt SETCOLOR, not SETCOLOUR. If you type it correctly it will work OK.

As to your BOOT ERROR problems it sounds as though you might need to clean the heads on the tape recorder.

All Boot Error means is that the tape has failed to load. If it happens on too many of your tapes consider taking the recorder back to be checked.

Speedy listings

I HOPE this will help Peregrine Hill, Mailbag May 1986, regarding the speed listings scroll.

Listings do scroll too fast to read, but there is a way of pausing the listing without recourse to repeated use of Break, LIST (line no.), (line no.).

This is done by holding down the Control key, then pressing the 1 Key. This will pause the listing. Pressing Control-1 again will continue the scroll.

Using Control-1 will freeze the computer, and it will not accept any entry from the keyboard, except Control-1 or Break. So if you use this remember to press Control-1 to continue the scroll or Break to edit your program.

This feature can also be used to pause Basic programs while they are running, but remember to hit Control-1 again to enable the program to continue. – **Peter Boulter, Twickenham, Middlesex.**

Sluggish interpreter

AS a confirmed Basic user, I am rather disappointed with the language provided with my recently bought 800XL.

While its features are entirely adequate, its speed is prohibitive for the large data handling programs which I write.

I have used a BBC computer which offers equal, if not more, facilities and yet seems much faster.

This may be a naive comment, but since both these machines use the same processor surely a faster Basic for the Atari could be written.

I have been following the

recent articles in Atari User *on the Basic Compiler with some interest and, while this offers probably the best solution to the speed problem, I feel that there is still room for a fast translator-type Basic.*

Your comments on this subject would be appreciated. – **Mike Rose, Didcot, Oxon.**

● There are indeed faster Basic interpreters for the Atari, the best of which is probably O.S.S.'s Basic-XE.

It is entirely compatible with your standard Atari Basic programs, but runs between two and four times faster, has full procedure operations with parameter passing, player/missile graphics, I/O control, DOS functions and IF . . . THEN . . . ELSE . . . ENDIF, WHILE . . . WEND, string arrays – plus LEFT$, MID$, FIND and so on.

It also features fast array sort functions and much faster floating point operations. All of this is packed into a bank-switching cartridge which takes up no more memory than standard Basic does.

To cap it all, if you happen to have a 130XE with 128k you can use that extra 64k bank for programs completely automatically, which means more free memory than any other Basic.

O.S.S. products are imported from US by Software Express, and are thus a little expensive, but once you've used them you'll never turn back.

Getting it wrong

I OWN a 130XE, disc drive 1050 and XC II cassette deck. I have bought your magazine since January 1986, and am having some difficulty typing in the listings.

Could you print the listing of the Get It Right! program again, so I can see where I've been going wrong with Des Bells and Dots Square. – **J.A. Buys, Holland.**

★ ★ ★

I HAVE just read David Chapman's letter in your May issue. I also am a newcomer to home computing, and would like to know how to use the checklist.

As you did not reply to this question from him, would you reply to mine?

By the way, a really good book explaining programming is Easy Programming for the Atari Micros by Eric Deeson.

It is written in easily understood language, which even I could get to grips with. – **Diane Bonnington, Stratford, London.**

★ ★ ★

I TRIED your checksum in the March 1986 issue of Atari User *on a program called Bounce from the February 1986 issue.*

When I typed the program in I then typed LIST"C" and pressed return, then the computer started saving.

When it finished it said "Delete program by typing NEW", which I did. It then said "Now load get it right into the machine taking note of instructions contained in REM 999" so all I did was type CLOAD, and after a few seconds I got Error 21 load file error.

Please, tell me what I'm doing wrong, and what is REM 999. – **Christopher McInerney, Dunstable, Beds.**

★ ★ ★

I HAVE recently got an Atari 800XL computer and since then have been buying your useful and informative magazine. However I have noticed that your listings have a section labelled Get It Right!

I get the feeling that this will be useful when inputting your programs, but I do not know how to use it.

Could you please explain to me how to use this facility as I invariably make mistakes in my typing. – **Dave Smallman, Peterborough.**

● To use the Get It Right! program firstly make sure that you have the updated version of the program, as provided on the January 1986 disc/cassette.

After typing it in CSAVE it to a spare cassette, or just save it to disc, and write-protect it.

Line 999 will need to be altered depending on whether you have a disc or cassette.

Each time you want to checksum a new program type it in from the magazine, and then list it to tape or disc – for example LIST "C:", or LIST "D:TEST".

Now type NEW and load the Get It Right! tape back into memory, with CLOAD.

Put your listed program back into your recorder/disc drive, and type RUN.

The checksum information will now magically appear on the screen. Check this off against the version printed in the magazine. If you have made any mistakes the numbers will not tally on the incorrect lines.

If you want to reload the listed program again, type NEW and then use ENTER "C:" or ENTER "D:TEST".

In response to numerous requests we shall be reprinting the Get It Right! program in next month's *Atari User.*

Correction corrected

FOR those of you with XL or XE machines who have been trying to use Frank O'Dwyers Basic Compiler program, we're sorry to say there was a small mistake in last month's correction piece on page 32 (How embarrasing . . .)

All you need to do to get it fully working (honest), is to ENTER the Library section into your Assembler/Editor, and add the following two lines:

```
509      JMP CONTPROG  ; BYPASS XL/XE 'EOUTCH' & 'GET' MODS.
530 CONTPROG
```

Then LIST it back on to your master tape or disc. Otherwise your compiled program will more than likely just print a heart on the screen and promptly crash. When you've written some programs using the compiler why not send some examples in to us? We'll print some of the best in a future issue.

Overlapped listings

I HAVE an Atari 800XL, and am having difficulty typing in certain lines of your published programs.

When I type them in the 800XL rejects them. I have also tried on two other 800XLs with the same result.

Some examples are October 1985 Pontoon lines 900 and 1110, January 1986 Des Bells line 4010, and March 1986 Horseplay lines 1010 and 2670.

Is this because the games have been typed on a different model?

I have tried altering the lines and splitting them up, but with my very limited knowledge of Basic I am having little success. Any light thrown on this subject would be very welcome. – **William Jackson, Buckhaven, Leven Fyfe.**

★ ★ ★

I HAVE an Atari 800XL and have been trying to type in Mr Humpy, but the last bit of line 4010 won't go in – 8-BRIDGE,15:? 6;"".

Can you tell me if there is any way to get the line in? – **Bryan Vince, Luton Beds.**

● YOUR problem lies in the fact that the Atari can only accept up to three screen lines of typing at once – that's what the bell near the end of the third line means.

Some of our listings, as you have found out, overlap on to FOUR lines. So how do you type them in?

Firstly, before starting to type a program in, try typing POKE 82,0. This allows you to use the space in the left margin to type in, giving you an extra six characters.

The other way to pack more on to a line is to use

→

abbreviations. For example, typing POS. 12,12 means the same to the computer as POSITION 12,12.

The abbreviations are listed in the manual, but POS. for POSITION, SE. for SETCOLOR and DR. for DRAWTO are some common ones.

Also don't type in spaces outside of double-quotes when you're short of space:

```
10?"HELLO":GOTO1000
```

is just as good as:

```
10 ? "HELLO" : GOTO 1000
```

to the computer.

Using a combination of these tricks you can type in anything that appears in these pages – don't forget, someone had to type it all in in the first place.

Graphic characters

I AM having difficulty programming Fruiti Gambler from your August 1985 issue.

In this month's issue a correspondent has explained how to get the arrow symbol, but I cannot key most of the graphic characters printed in this program.

Could you tell me how to type these characters in? The lines that are causing me difficulty are 1150, 1160, 1170, 1710, 1736, 1740, 1750, 1760 and 1770. – **V. Dryden, East Sussex.**

● The characters you refer to are all created by pressing keys while holding down the Control button.

These are listed in full in our December 1985 issue, along with all of the arrows and so on that you mention.

Listings often contain these characters side-by-side to make block shapes and underlines.

Contacts wanted

AT the end of last year I decided to sell my BBC Micro after four years of total boredom.

With part of the money I bought an Atari 800XL and 1050 Disc Drive. Now I look on computers as a joyful hobby once more.

I am interested in contacting Atari users in the Colchester district so I can exchange views, software and so on. **Mark Gosling, 9 Norfolk Avenue, Mersea Island, Essex CO5 8EN.**

★ ★ ★

I LIVE in Shepton Mallet, Somerset, and own an 800XL. Could you put me in touch with any other Atari users nearby? – **David Stevens, Fox Hollow, 8 Gold Hill, Shepton Mallet, Somerset, England.**

★ ★ ★

PENPALS are required in the Merseyside area to swap hints and tips on programming and games. I own an 800 and 130XE, and am shortly buying an ST.

Please write to **Mike Lynch, 24 Oakdene Road, Anfield, Liverpool, Merseyside L4 2SR.**

★ ★ ★

I WOULD be interested in getting in touch with anyone who is interested in serious programming on the 800XL. I would like to swap ideas on assemblers, monitors and so on. **Nino Matassa, 66/67 Talbot Street, Dublin 1, Ireland.**

★ ★ ★

I OWN an Atari 800XL, and here in Malaysia, Atari computers are not as popular as in the USA and the UK.

Most of the people here just think of it as a games machine, so I have many problems in getting the software and hardware.

The nearest place where I can get Atari User *is 100 miles away. I can't get every issue of the magazine, and the ones I can get are two months late.*

I would like some pen pals who own Atari 8 bit computers in any country outside Malaysia. Interested please contact: **Ooi Chee Kian, 192 Taman Lam Sun, 05200 Alor Setar, Kedah, Malaysia.**

★ ★ ★

I OWN an Atari 800XL and XC11 data recorder, and would like to correspond with Atari users of any nationality, interested in assembler, machine code and so on. **Luis Alberto, Rua Miguel Pais No. 27 30B, 2830 Barreiro, Portugal.**

● If you find yourself out in the cold when it comes to finding other Atari enthusiasts you could always join MicroLink.

There are thousands of users of computers, including Ataris, from all over the world

A good advert for Atari

I RANG the Atari help-line to ask for details of a local 520ST supplier.

They gave me the details of an area wholesaler who gave me the name of a company in Worcester from whom I bought the 520ST, a 1Mb disc drive and an Epson LX-80 printer.

I received no demo, nor assistance with setting up, and received only the systems disc – no other free issue software.

The disc drive never did work and was replaced, and by going direct to the wholesaler I was able to get the other free issue software.

From time to time I asked for the new free issue software which I read about in your magazine, but to no avail. My dealer just told me that the new was not as good as the old, and that was that.

In February I read an advertisement by Software Express in your magazine and bought some business software from them.

They showed great knowledge and skill and were obvious enthusiasts. I used the software, but experienced odd troubles with it, concluding that it was my lack of computer literacy.

The whole system then gave up quite recently, and it was thought to be the disc drive again. This was returned to the dealer who told me it had a 90 day warranty, but that they would send it for repair.

As I have a business to run and could not afford to wait the 7 to 10 days needed for repair I decided to buy another disc drive, so that eventually I would have twin disc drives. At the same time I wanted to have ROM chips fitted to my board.

Naturally I returned to Software Express who found to their surprise that the board was one of the first ever made, and in theory at least could not have been sold in December 1985. In consequence they could not fit the chips.

Although they were not the original dealer they arranged for a wholesaler to replace the board with a new one, to which they fitted the ROM chips. In the short time since I bought the Atari I have learnt the following lessons – firstly Atari do not deal with correspondence. Also if you are a business user and require support go to a dealer like Software Express. My first choice turned out to be a computer game retailer.

The quality control on Atari products is obviously not all it should be, so check the warranty terms carefully. In my case I later learned that the warranty on the disc drive is 12 months not 90 days.

Finally read Atari User *carefully, and get the updated software and other equipment upgrades to which you are entitled.*

I cannot praise Software Express enough for their service and efficiency – they are a better advertisement for Atari products than Atari deserve. – **M.C. Faiers, Lower Broadheath, Worcester.**

on the service, and you can send electronic mail or chat to them directly via your keyboard and screen.

Don't forget that you can do all of this with a local phone call, even if the other user is the other side of the world. It beats having to rely on Snail-Mail anyway.

Joystick ports

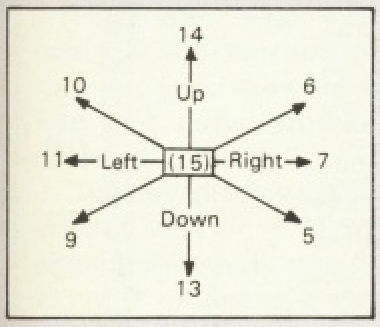
PLEASE could you tell me how to use both joystick ports within a Basic program?

I suspect it will need a machine code routine accessed by the Basic program, or can I peek into specific memory locations to get the same results? – **L. Groves, Swindon, Wiltshire.**

● Although you can use peeks and machine code, why not use the STICK command to read the joystick?

All you need to do is use LET A=STICK(0) or LET A=STICK(1), depending on which joystick you are interested in.

The variable A, or whichever one you used, will then contain one value from the following:



The trigger button can be checked by using STRIG(0) or STRIG(1). If the answer is 0 the button is pressed.

Printer software

I HAVE recently bought a 1027 printer to use with an 800XL with cassette recorder.

However I have been unable to obtain software – cartridge or cassette – to put the printer to good use – the only word processor type software being on disc.

Could you tell me of anything available? – **B. Middle, Penygraig, Tonypandy.**

● The best answer to your problem is, as you say, disc-based word processors such as SuperScript or PaperClip.

However Atari's own AtariWriter cartridge is quite a nice little word processor for the money, and it will work with cassette.

Your only problem may be that of finding a copy, as they are a little scarce these days.

Print quality

A DISABLED friend of mine was given an Atari 800XL plus data recorder and a bundle of games for Christmas. She is now very keen to make up a word processor.

What she wants to do is to type words in upper and lower case that appear on the screen so that she can modify and then print them on an A4 sheet in good typescript – so maybe a full word processor is not needed.

With frantically scraped-together money I bought an Atari 1027 printer, knowing that other stuff would probably be needed.

She was pleased, knowing my technical aptitude, that I had not returned bearing a 1928 Remington typewriter and a P9 battery, but when I tried out the printer we were both disappointed for two reasons.

The typscript wasn't black enough – despite changing that little roller and even rolling the spare one across the letter die. It's irritatingly mild looking.

Also there are two lines on the TV screen = (approx) one line on the A4 sheet. This will surely dash to pieces the dream of viewing a complete A4 sheet on the screen and then selectively altering same.

Bit of a depressing situation. Perhaps I should have bought an electric typewriter with computer compatibility.

I know that I've got to buy a program but do I have to discard the data recorder and get a disc drive? – **J. Chapman, Birmingham.**

● There is little that can be done to improve the print quality. Don't forget that, although it set you back quite a sum of money, the 1027 is still a budget type of printer when compared to most letter quality machines.

The screen problem can't be overcome completely, other than with a hardware modification, but you could use a word processor such as SuperScript, AtariWriter Plus or PaperClip, all of which give you preview mode which allows you to use the 40 column screen as a window on to a larger format.

This allows you to check that the columns are aligned correctly and so on before you commit the text to paper.

As to your question on cassettes – we would strongly recommend that you invest in a disc drive – all of the above programs being disc only – both for greater reliability and much greater speed.

Reversing the screen

I TYPED into my 800XL the Micropainter transfer program from February's issue of Atari User. It is very useful but I have a few queries.

The program also works for Koala Pad which uses 62 sector graphic files. However some files appear reversed when dumped to a printer in other words as negatives.

Is there any quick way to reverse the screen before the GR.8 screen dump? I can do it only by changing or reversing each pixel on the screen. It takes ages but it works.

Secondly, when a screen is saved it requires 64 sectors instead of 62. This doesn't seem to make any difference when loaded back on the screen, but when the saved screen is dumped to a printer the last pass of the printer leaves two lines of garbage at the end. – **R.G. Routledge, Westcliff-on-Sea, Essex.**

● The real answer to your problem is to use a machine code program, but the fastest that poor old Basic will do is by using the following program:

```
10 ADDR=PEEK(88)+PEEK(89)*256
20 FOR I=ADDR TO ADDR+7679
30 POKE I,PEEK(I)-255
40 NEXT I
```

This should be run with the graphics screen displayed but before going to the dump routine. It will invert the whole of the screen – faster than LOCATE and PLOT, but still not very fast I'm afraid.

Surviving Mercenary

I WOULD like to compliment Novagen on its new game Mercenary. I have just spent two days playing it, and have just finished it, the easy way.

For anyone who is stuck in Mercenary I suggest you take the easy way out and send away for the survival kit and hint sheet.

This is a good way to get you to spend more money, but for around £3 it's well worth getting.

It is also a good idea to save your position at frequent intervals to save time if you lose the program. One last hint – don't go into the prison! – **W. Wedderburn, By Aviemore, Scotland.**

Advertising begins at home

I HAVE just read your comments on Micro Live in Atari ST User and I would like to say I and my friends wholeheartedly agree with what you say.

Micro Live has always been an advert for Acorn micros.

→

Ever since the first programme the BBC Micro has been projected as being vastly superior to anything else.

In an early programme there was a comparison between word processors for home micros. This was done with five or six different micros lined up, each using its own program.

Atariwriter was featured on an 800XL, operated by some TV personality. Needless to say, Atariwriter was found to be difficult to use because it only had a 40 column display and was generally looked down upon.

The Beeb, of course, was the machine for word processing, with Wordwise. When Micro Live's American correspondent announced the launch of, and impact of, the 520ST it was played down at this end, and the report seemed to be cut short.

Be fair though, its not only Micro Live. Tomorrow's World and Blue Peter are also involved in this massive hype.

Without this advertising support the BBC Micro may well have died from an excess of overcharging a long while ago. – **David Butters, Swaffham.**

Bugs, bugs and even more bugs

SEVERAL years ago when the BBC Micro was first announced there were many tales of bugs in ROMs, dodgy PSUs and flaky ULAs. It seems that even now a machine is plagued with problems from the point of purchase.

I bought an Atari 520ST in October 1985 and have since had no end of trouble in trying to obtain the specification as advertised.

The operating system in ram is still not available as an upgrade in rom, so you effectively lose 200k of memory from the point go.

With Basic loaded you are left a meagre 5k of program space. I am now told by Atari that if I wish to connect a colour monitor to my machine after the rom upgrade which costs £25 I will be required to buy a new video chip for £40.

It also seems that to get a decent version of Basic, in other words without bugs, Atari users are going to have to fork out £90 for the new Atari Basic.

This is just typical of the computer industry. When will manufacturers finish their products before releasing them? – **David Hale, Ashford, Middlesex.**

Less costly control box

I HAVE had an Atari 130XE for about a year and would like to know if it is possible to control several motors.

All I want is the control box. I have seen the zero 2 robot for £119.95 but this is too expensive for me, so can you tell me where I can get a less costly control box.

I have tried Silica Shop, but they don't do robotics for the Atari. – **Philip Mack, London SE8 4DY.**

● In the new Great Little Gadgets series we will be covering motor control and so on.

The black line way to more legible screens

By LEN GOLDING

RUMOUR has it that a certain competitor of the Atari can display listings with black ruled lines under every line of text. This probably doesn't make much difference in normal usage, though it's an interesting effect.

However when you are editing crowded programs, or displaying text for very young readers the lines can improve screen legibility, so here's a routine that will put the competition to shame.

It works by changing the display list, naturally enough, but it has to cheat a bit because there's a potential conflict between the Antic chip and the screen editor.

The editor assumes there are always 24 text lines in a Graphics 0 screen, and it won't notice the thin black ones. But Antic controls the TV display and it wants to add extra lines, which means your TV display will get taller.

Twenty three black lines are needed, and each is one-eighth of a Graphics 0 line high. So we need to accommodate the equivalent of three extra text lines on screen.

Fortunately Atari left very generous top and bottom margins when they designed the hardware, so most TVs can cope provided they are adjusted correctly.

The new display list sits in page 6 – where else? – and the data statements show what it looks like. Every 0 produces a blank line, and every 2 a normal text line.

The first three numbers added together determine the top margin, and you will probably need to experiment with other values to suit your own TV.

Legal numbers are 0, 16, 32, 48, 64, 80, 96 and 112. Don't forget that this is bending the rules, as all display lists should, according to Atari, start with three 112s.

A display list is not a true machine code routine, although it looks a bit like one. It's more of a data table, which Antic refers to as it draws the TV display.

You can therefore change some of the numbers without locking everything up – though you will get some peculiar results if you alter any but the first three.

Lines 10 to 30 copy the new display list into page 6, starting at address 1536. Line 40 tells this display list where the screen is located in memory, and line 50 gives Antic the new address to tell it to start using the new display instead of the standard one.

Once this has happened the Basic loader routine is no longer needed. Type NEW and the new display will still remain.

Pressing System Reset will bring back the conventional screen, but the ruled lines can be restored by repeating the POKE instructions at line 40. ■

```
10 FOR X=0 TO 54:READ D:POKE 1536+X,D:
NEXT X
20 DATA 16,16,80,66,255,255,0,2,0,2,0,
2,0,2,0,2,0,2,0,2,0,2,0,2,0,2
30 DATA 0,2,0,2,0,2,0,2,0,2,0,2,0,2,0,
2,0,2,0,2,0,2,0,2,0,2,65,0,6
40 POKE 1536+4,PEEK(88):POKE 1536+5,PE
EK(89)
50 POKE 560,0:POKE 561,6
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	7629	20	9566	30	9231
40	7345	50	3786		

ATARI USER MAIL ORDER OFFERS

These back issues are still available

June issue: Analysis of the 130XE, Submarine, Adventuring, Random numbers, Software reviews, Frog Jump, Microscope, Sounds, Atari Insights – Bit Wise, Beginners and Graphics, special 12 page feature on Communications.

July issue: Disassembler, Bomb Run, DOS 2.5, 17 Commandments, Adventuring, Display List Tutorial, Software reviews, Power Functions, Treasure Hunt, Keyboard Sounds, Microscope, Insights – Bit Wise, Beginners and Graphics.

August issue: Analysis of 520ST, program protection routines, Fruiti Gambler, Assembler, Touch Tablet programs, first look at Logo, Raider 1997, Dos 2.5 upgrade offer, Display List Tutorial, Microscope, Software reviews, Insights – Bit Wise, Beginners and Graphics.

September issue: 8-page special on the 520ST, Mode 8 screen dump routine, Maze Munch, Data Maker, Display List Tutorial, 68000 addressing modes, list processing with Logo, Software reviews, Insights – Bit Wise, Beginners and Graphics.

October issue: Computer Canvas graphics program, Updates for RAW 6502 assembler, 130XE Ram-disc utility, Hex/Ascii memory dump utility, Pontoon, Software reviews, 68000 operating environment, Wraptrap, Insights – Bit Wise, Beginners and Graphics.

November issue: Converse program, Bitwise operator utility, ST graphics examples, ST software list, Guy Fawkes game, Display List tutorial, Adventuring, Microscope, Software reviews, Insights – Bit Wise, Beginners and Graphics. programming in C on the ST, Adventuring, Software reviews.

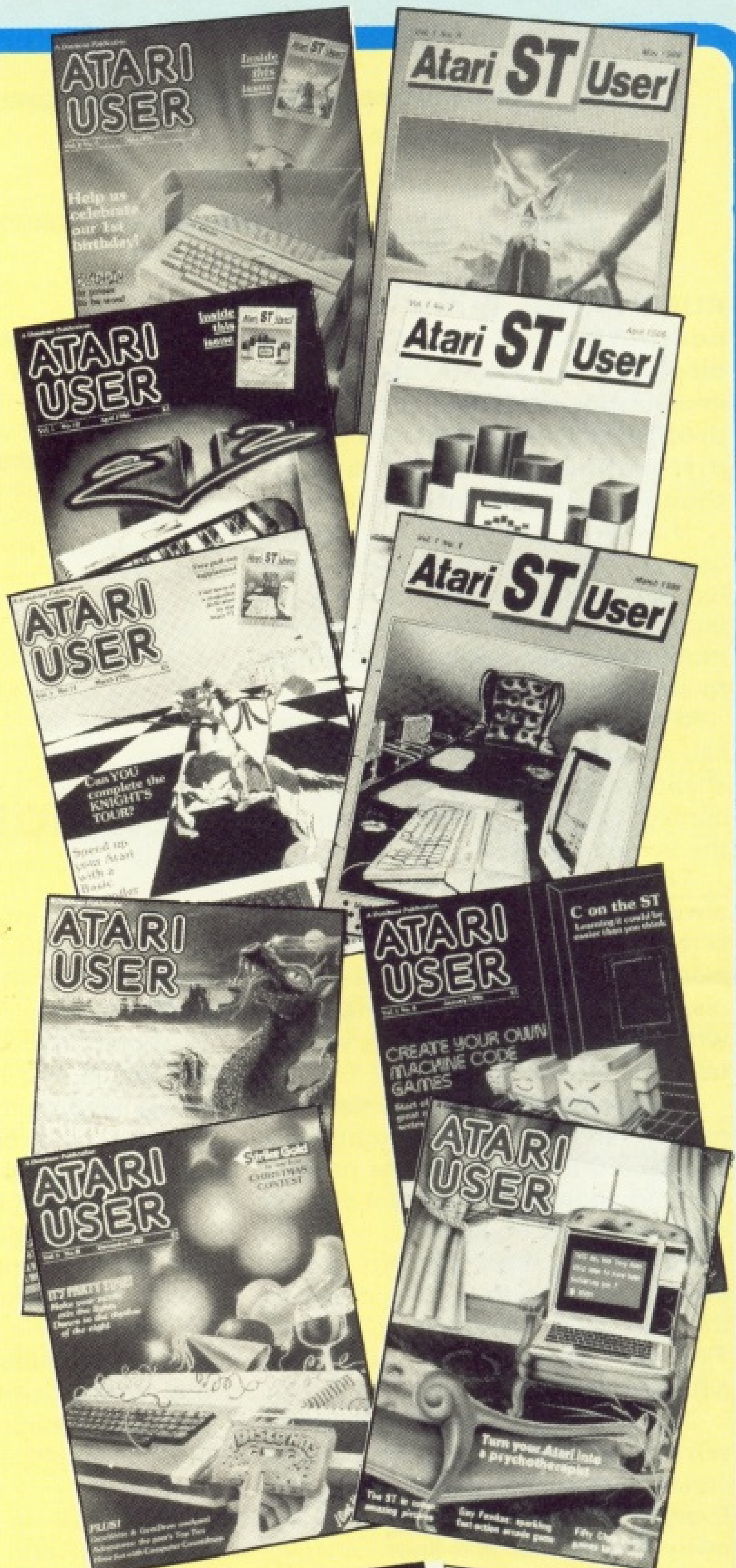
March issue: Machine code games Pt. 3, Knight's tour program, Compiler Pt. 1, Superscript review, Check-sums for early games, Book reviews, Adventuring, Software reviews, PLUS **Atari ST User:** K-Spread review, Jeff Minter and Colourspace, Music Pt. 1, Making the most of the ST.

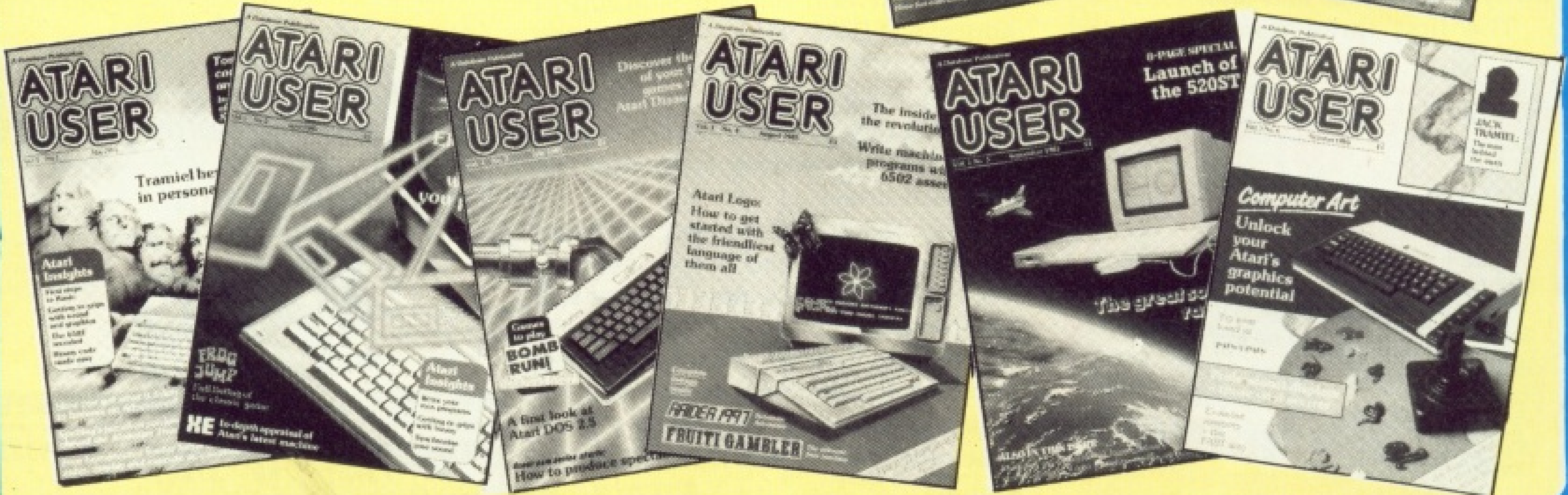
April issue: Sound synthesiser, Compiler Pt. 2, Using modes 12 and 13, Mancuna strategy game, disc directory printing utility, Adventuring, Software reviews, PLUS **Atari ST User:** Review of TDI's Modula-2, music via the Midi ports, Making the most of the ST, and all the latest news.

May issue: Sam Tramiel Interview, Cavern Escape maze game, Compiler Pt. 3, Player Missile Graphics Pt. 1, Anna's Spelling Program, Adventuring, Software reviews, PLUS **Atari ST User:** Atari Show report, The Pawn and Disk Utilities reviewed, ST Graphics Pt. 1, Degas-toNeoChrome Picture conversion program, Making the most of your ST, and the latest 8-bit and ST news from the States.

June issue: Cavern Escape maze editor, Part 1 of Great Little Gadgets – build a light sensor, Final part of Basic Compiler series, Five Liners £1, Player Missile Graphics Pt. 2, Adventuring, Software reviews, American Scene, PLUS **Atari ST User:** Conclusion of ST Art series, type-in 3-D maze game in Basic, Two 1-meg upgrades, Software reviews, Making the most of the ST, and all the lastest ST news.

£1.25 EACH

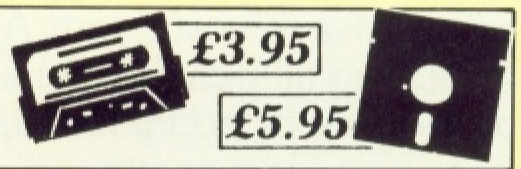




ATARI USER MAIL ORDER OFFERS

Keying in long programs too much of a chore?

Then give your fingers a rest by sending for our monthly disc or cassette containing all the programs from each issue of Atari User. See order form opposite.



JUNE: Frog Jump: Guide the frog to his home in this version of the arcade classic. **1300XE Ram Power:** Use the extra 64k of memory to good effect. **Submarine:** Scuttle the submarines. **Etcha-Sketch:** Draw pictures with a joystick. **Random Numbers:** Get random numbers from machine code. **Filthy Fifteen:** Can you keep the Filthy Fifteen happy in their cells?

JULY: Bomb Run: Flatten the deserted city and land safely. **Disassembler:** Find out what's going on deep inside your Atari. **Treasure Hunt:** Use logical thinking to find the treasure. **Password Generator.** Keep generating passwords till you find one you like. **Keyboard:** Convert your micro into an organ. **Quasimodo:** Can you sort out the mess of ropes in the belfry?

AUGUST: Assembler: Make machine code programming easier. **Fruiti Gambler:** Save money with this fruit machine simulation. **Mandala:** Complex patterns made easy. **Protection:** Protect your programs from prying eyes. **Display List:** Demonstration programs. **Raider 1997:** Futuristic text adventure. **Touch Tablet:** Demonstration programs.

SEPTEMBER: Maze Munch: Help Horace the Blob munch the maze monsters' morsels. **Data Maker:** Convert your machine code routines to DATA statements. **Display List:** Demonstration programs. **Screen Dumps:** Dump your Mode 8 screens to a 1029 printer. **Bricks:** Solve the Bricks problem.

OCTOBER: Pontoon: Twist? Bust! **Memory Dump:** Examine memory in hex and Ascii. **Display List:** Demonstration programs. **Wrap Trap:** Action game for one or two players. **Computer Canvas:** Make your own micro masterpiece. **Assembler Update:** Improvements for RAW assembler. **Ram Disc:** Make the most of the 130XE's extra memory.

NOVEMBER: Guy Fawkes: Help Guy escape from the guards. **Converse:** Teach your Atari to be a psychotherapist. **Display List:** Demonstration programs. **Bitwise Operators:** Utility to provide logical functions. **Circle:** Draw and fill a circle. ***Plus:*** Freebie of the month – **Creepshow** machine code pinball game.

DECEMBER: Countdown: Micro version of the famous TV game. **Get It Right!:** Atari User's own check-sum program. **Disco:** Son et lumière on your Atari. **List Utility:** Makes listing easier. **Display List:** Demonstration programs. ***Plus:*** Freebie of the month – **Jane's Program** machine code entertainment.

BASIC COMPILER: The entire set of Basic Compiler programs from the March to June issues on one tape/disc. Write easy routines for your programs that will run at machine code speed. Contains the Compiler, Library and many example programs. (N.B. Requires an assembler.)

JANUARY 1986: Bells: Help Mr Humpy rescue Esmerelda. **Get It Right!:** Atari User's own checksum program. **Alien Attack:** The game to accompany the machine code series. **Lister:** Make listing programs easy. **Dots:** Play the micro or another player at this strategy game. **Dump:** 1020 printer/plotter routine. ***Plus:*** Freebie of the month – **Scramble Fighter** machine code game.

FEBRUARY: Micropainter: Programs to manipulate Micropainter screens. **Clock:** Interrupt driven clock utility. **Flasher:** Flashing colour utility. **Bounce!:** Simple to play, hard to master. **Bridge:** The thinking person's card game. ***Plus:*** Freebie of the month: **Demon's Lair** – an adventure game you may never escape from.

MARCH: Horse Play: Knight's tour program. **Basic Compiler:** Program to accompany the new series. **Alien Attack:** Final part of assembly listing. ***Plus:*** Freebie of the month: **Winston in the Caves** – can you keep your head and help Winston find his?

APRIL: Synthesiser: Activate the hidden depths of the Atari sound chip. **Disc index:** Keep track of disc files and free space with this index printing program. **Graphics:** Make the most of Modes 12 and 13. **Mancuna:** Can you beat the game that learns from its mistakes?

MAY: Cavern Escape: Can you help In-I-Go Joe escape from the labyrinths with King Muneebag's gold? **Player Missile:** Program to accompany the start of the series. **Spelling:** Automate those weekly school spelling tests.

JUNE: Maze Creator: Create hundreds of new mazes for last month's Cavern Escape game. **Player Missile Designer:** Create your own DATA shapes with this Player/Missile Editor. **Five Liner 1:** Simple Dice rolling routine – build it into your own programs.

JULY: Space Maze: Manoeuvre your space ship through the treacherous space caverns. **Player Missile Example:** Program to display your Player Missile graphics. **Gadgets:** Two programs to run devices via your new joystick-port interface. **Five Liner 2:** Create BBC-type displays on your Atari. **Rambas:** Correct those bugs in the XL's Rev. B Basic.

TO ORDER USE THE SPECIAL FORM ON PAGE 57

 ATARI USER MAIL ORDER OFFERS

SAVE up to 50% on insuring your Atari, monitor, disc drives and printers

Atari User has negotiated special terms with one of Britain's biggest insurance companies to cover your Atari system (including all peripherals) against theft, breakdown or accidental damage.

Your system is covered while it is in your own home, while it is temporarily elsewhere, and even when it is in transit – but only within the UK.

Examples of this special price:

System worth	Premium
£200	**From £10**
£500	**From £16**
£1,000	**From £35**

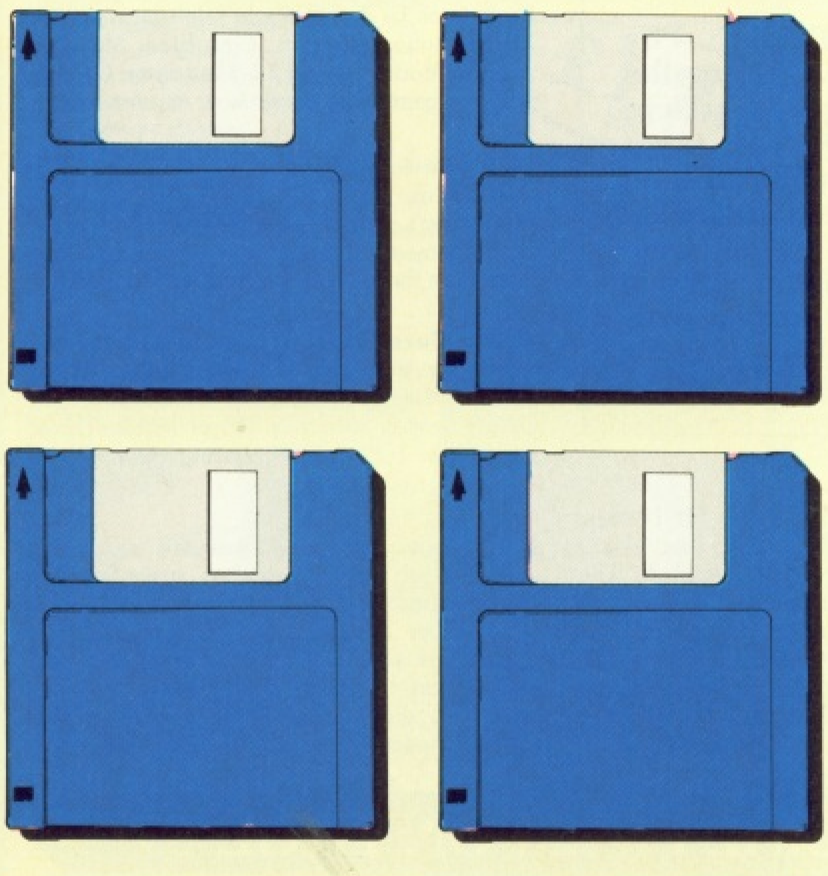
Different rates apply to rural, urban and metropolitan areas.

A scheme is also available for businessmen which provides additional cover. Details on application.

No insurance package has ever before offered you breakdown cover.

FOR SUBSCRIBERS ONLY!

The offers on this page are restricted to subscribers to Atari User. See the order form on the right.



You can save up to £10 with this exclusive reader offer

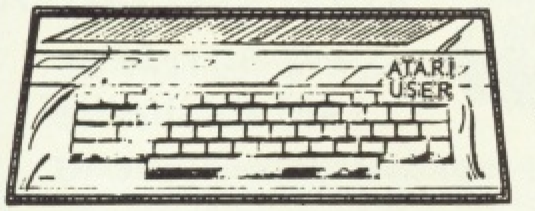
For Atari ST users we can offer FOUR $3\frac{1}{2}$" single sided discs for the unbeatable price of **£5.99!**

ATARI USER ORDER FORM

Your Atari needs protecting

Now for the 800XL and ST range

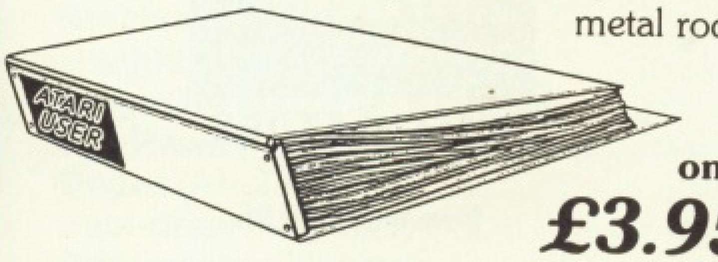
Protect your 520ST, 1040ST, 130XE or 800XL with our luxury dust cover made of soft, pliable, clear and water-resistant vinyl, bound with strong cotton and decorated with the magazine's logo.



only **£3.95**

Keep your collection complete

Bound in chocolate brown pvc and bearing the Atari User logo, this handsome binder will hold a year's supply of the magazines firmly secured in place with metal rods.



only **£3.95**

Here's a really unbeatable offer for all Atari users!

This top-quality T-shirt woven in an attractive shade of grey with the Atari logo in red is a genuine American 'Fruit of the Loom' product, made from 50% cotton/50% polyester.

The T-shirts are on sale at £4.25. Please order on our official order form.

Made in three sizes:
- Small – 34"-36"
- Medium – 36"-38"
- Large – 38"-40"

All prices include postage, packing and VAT. Overseas orders despatched by Air mail.

Valid to July 31 1986 (✓) £ p

Annual subscription
- UK & EIRE £12 (sterling only) 7001
- Europe £15 7003
- Overseas (Airmail) £30 7004
- Tick box if renewal

Commence with .... issue

Exclusive offers for subscribers
- Insurance offer. I wish to know more* 2477
- 4 3½" discs £5.99* 7068

Add £2 for Europe/Overseas

These offers are available to all subscribers

Back issues
£1.25 UK & Eire
£2.25 Europe
£3.25 Overseas Airmail

Dec '85, Jan '86 and Feb '86 issues not available

Issue	Code
1985 May	7005
Jun	7006
Jul	7007
Aug	7008
Sep	7009
Oct	7010
Nov	7011
1986 Mar	7015
Apr	7016
May	7401
Jun	7402

Monthly Cassette/Disc
Cassette
£3.95 UK
£4.95 Europe/Overseas

5¼" Disc
£5.95 UK
£6.95 Europe/Overseas

Issue	Code	Tape	Disc
May	7017	Not available	
Jun	7018		
Jul	7019		
Aug	7020		
Sep	7021		
Oct	7122/7022		
Nov	7123/7023		
Dec	7124/7024		
1986 Jan	7125/7025		
Feb	7126/7026		
Mar	7127/7027		
Apr	7128/7028		
May	7201/7301		
Jun	7202/7302		
Jul	7203/7303		

Basic Compiler Cassette/Disc
Tape / Disc: 7072/7073

Cassette £3.95 UK £4.95 Europe/Overseas
5¼" Disc £5.95 UK £6.95 Europe/Overseas

Communications Books
UK only
- The New Hacker's Handbook £6.95 2473
- Hotline £6.95 2474
- Both books £13.90 2475

T-Shirt
£4.25 UK
£5.25 Europe
£5.75 Overseas Air mail
- Small 7047
- Medium 7048
- Large 7049

Dust Cover
£3.95 UK
£4.95 Europe/Overseas
- 130XE 7031
- 800XL 7060
- 520ST range 7064
- 1040ST range 7074

Binder
£3.95 UK £5.95 Europe; £10.95 Overseas Airmail 7029

Payment: please indicate method (✓)

☐ Access/Mastercard/Eurocard Barclaycard/Visa

TOTAL

☐ Cheque/PO made payable to Database Publications Ltd.

Credit card expiry date /

Name ____________ Signed ____________

Address ____________

Post code ____________ Tel: ____________

Send to: *Atari User*, FREEPOST, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

Please allow 28 days for delivery

Order at any time of the day or night

Orders by Prestel: **Key *89, then 614568383**

Telephone Orders: **061-429 7931**

Enquiries only **061-480 0171 9am-5pm**

Don't forget to give your name, address and credit card number

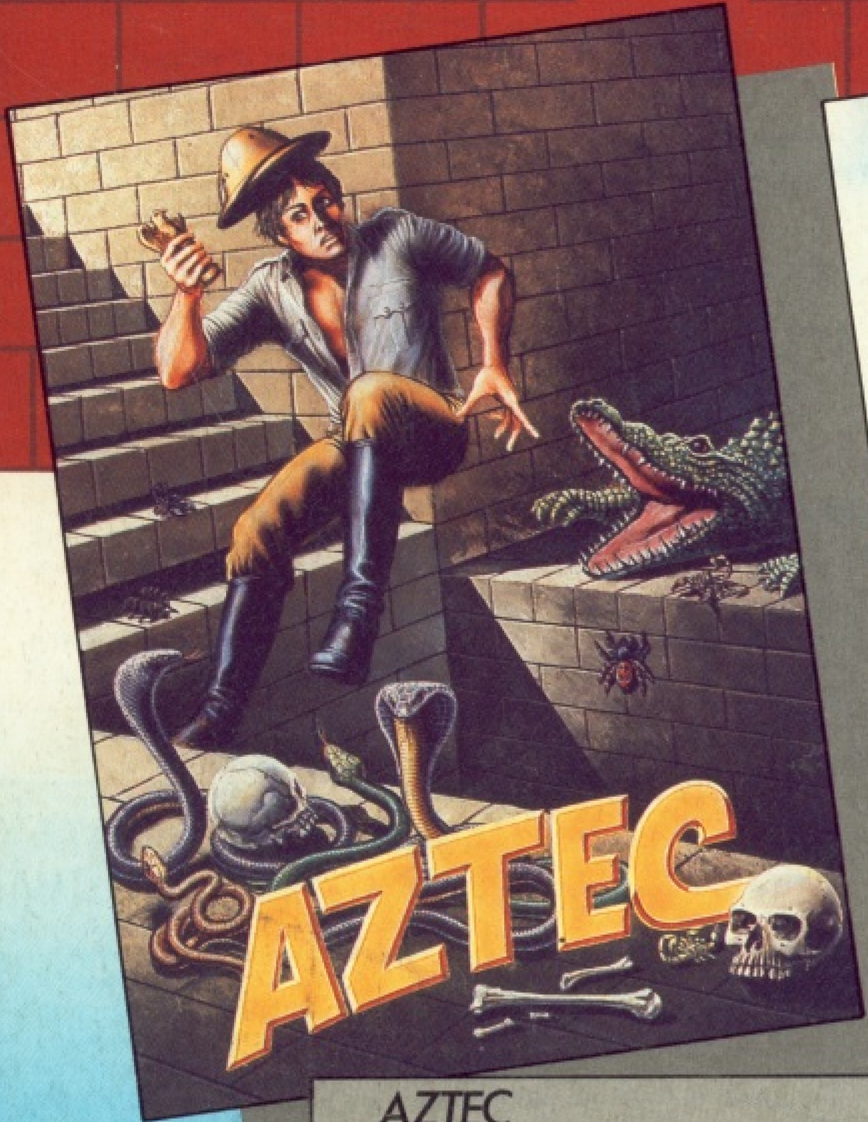
AT7

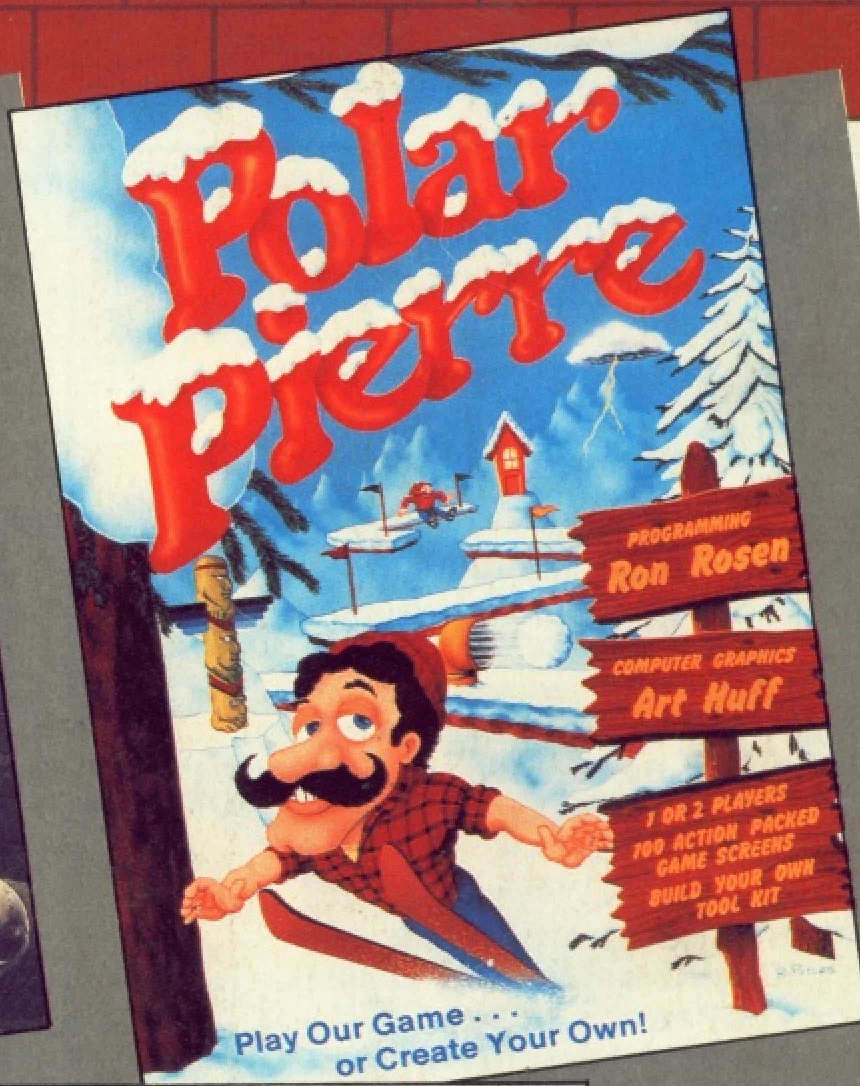
ADVERTISERS INDEX

ATARI

HITTING THE STREETS

with two games from Databyte





AZTEC

The first really new idea in real-time adventures! Hi-Res action-animation on-screen every moment. Dozens of "living" "breathing" monsters, Aztec guards, trap doors, death-rooms! Real life movement – walking, jumping, crawling, lunging, fighting. There's never been anything as novel, as exciting!

Cassette 9.95 Disk 14.95.

POLAR PIERRE

POLAR PIERRE is a one or two player arcade game where two can play at the SAME TIME. Guide Pierre or his cousin Jacques through an icy obstacle course, racing through ski jumps, mystery chalets, lifts, electro-generators, shooting snowballs, springboards, stompers, and thunder and lightning.

POLAR PIERRE also includes a construction set so you can design and play your own screens.

Cassette 9.95 Disk 14.95.

DATABYTE

Available from all good computer stores, or post free from:
DATABYTE, 15 Wolsey Mews, Kentish Town, London NW5. Telephone 01-482 1755

For All ATARI Computers: 400/800/XL/XE with minimum 48K RAM.